T E S III

TECHNICAL ENFORCEMENT SUPPORT AT HAZARDOUS WASTE SITES

U.S. EPA CONTRACT NO. 68-01-7331

CDM Federal Programs Corporation

FINAL REPORT
LOCKWOOD CORPORATION
RCRA FACILITY ASSESSMENT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, D.C. 20460

Work Assignment No.	:	254
EPA Region	:	VII
Facility ID No.	:	NED044101442
Contract No.	:	68-01-7331
CDM Federal Programs Corporation Document No.	:	T254-R07-FR-CMKR-2
Prepared By	:	Versar, Inc.
Work Assignment Project Manager	:	Alicia Fleitas
Telephone Number	:	(703) 750-3000
Primary Contact	:	Wes Bartley
Telephone Number	:	(913) 236-2888
Date Prepared	:	October 25, 1988

TABLE OF CONTENTS

FIGURES

TABLE OF CONTENTS
(CONTINUED)

FIGURES
(CONTINUED)

TABLES

TABLE OF CONTENTS
(CONTINUED)

Page

TABLES
(CONTINUED)

1.0 INTRODUCTION

Versar, Inc. received Work Assignment No. 254 through CDM Federal Programs Corporation (FPC) to conduct a RCRA facility assessment (RFA) at the Lockwood Corporation facility in Gering, Nebraska. This work is being conducted for U.S. EPA Region VII under Technical Enforcement Support Contract 68-01-7331.

The RFA is the first step of the RCRA Corrective Action Program. The primary objective of the program is the detection and correction of releases of hazardous wastes or hazardous constituents that may threaten human health or the environment. The RFA focuses on the identification of releases or potential releases from solid waste management units (SWMUs) to all media (i.e., soil, subsurface gas, ground water, surface water, and air). A SWMU is defined as a discernible waste management unit at a RCRA facility from which hazardous constituents might migrate. This definition includes, but is not limited to, containers, tanks, surface impoundments, waste piles, landfills, recycling units, and areas contaminated by routine, systematic, and deliberate discharges, from process areas (EPA, 1986).

The primary goal of the RFA is to identify and gather information on hazardous constituent releases from SWMUs to any media. The RFA screens from further investigation the SWMUs that do not pose a threat to human health or the environment. Based on the findings of the RFA, further steps in the Corrective Action Program may be required, including a RCRA facility investigation or interim corrective measures.

Versar performed a preliminary review (PR) of file information for the Lockwood facility using documents collected from the Region VII offices. State personnel were also interviewed, and documents in the state files were reviewed at the Nebraska Department of Environmental Control (NDEC) and other state offices on April 1 and 2, 1987. A visual site inspection (VSI) of the facility was conducted by Versar on April 3, 1987. The findings of these initial phases of the RFA process were

summarized in the draft report, "Interim RCRA Facility Assessment, Lockwood Corporation, Gering, Nebraska," submitted to U.S. EPA on May 29, 1987. Based on the findings of this report, a sampling visit (SV) was proposed to provide additional information about the areas of concern at the Lockwood facility. Versar conducted an SV at the Lockwood facility from September 21 to 23, 1987.

The approach and procedures used during the SV were described in the following document: Sampling Visit Work Plan, Lockwood Corporation, Gering, Nebraska, submitted to U.S. EPA on September 10, 1987. The Sampling Visit Work Plan, all onsite sampling activities, and the submittal of samples for analysis followed the quality assurance/quality control (QA/QC) requirements set forth in the Quality Assurance Project Plan (QAPP) for Performing Sampling Visits of RCRA Facility Assessments for Sites in Region VII (CDM FPC, 1987a).

This Draft Final RFA Report details the findings of the SV, presents the analytical data for samples collected during the SV, and offers recommendations for further action at the Lockwood facility in Gering, Nebraska.

1.1 Facility Description

The Lockwood Corporation facility is located on an 80-acre site in Gering, Scotts Bluff County, Nebraska (Figure 1). The site is located in a rural industrial area. The site is bounded by an industrial park to the west, the Union Pacific Railroad to the north, several private residences to the east and northeast, and agricultural fields to the south. A transformer substation, owned by the city of Gering, is located onsite on a 3-acre portion of the property (personal communication, R. Dugan, April 3, 1987).

Lockwood Corporation presently manufactures or has manufactured dump truck hoists, pumps, hydraulic cylinders, truck bodies, center pivot irrigation systems, potato harvesters, and potato planters.

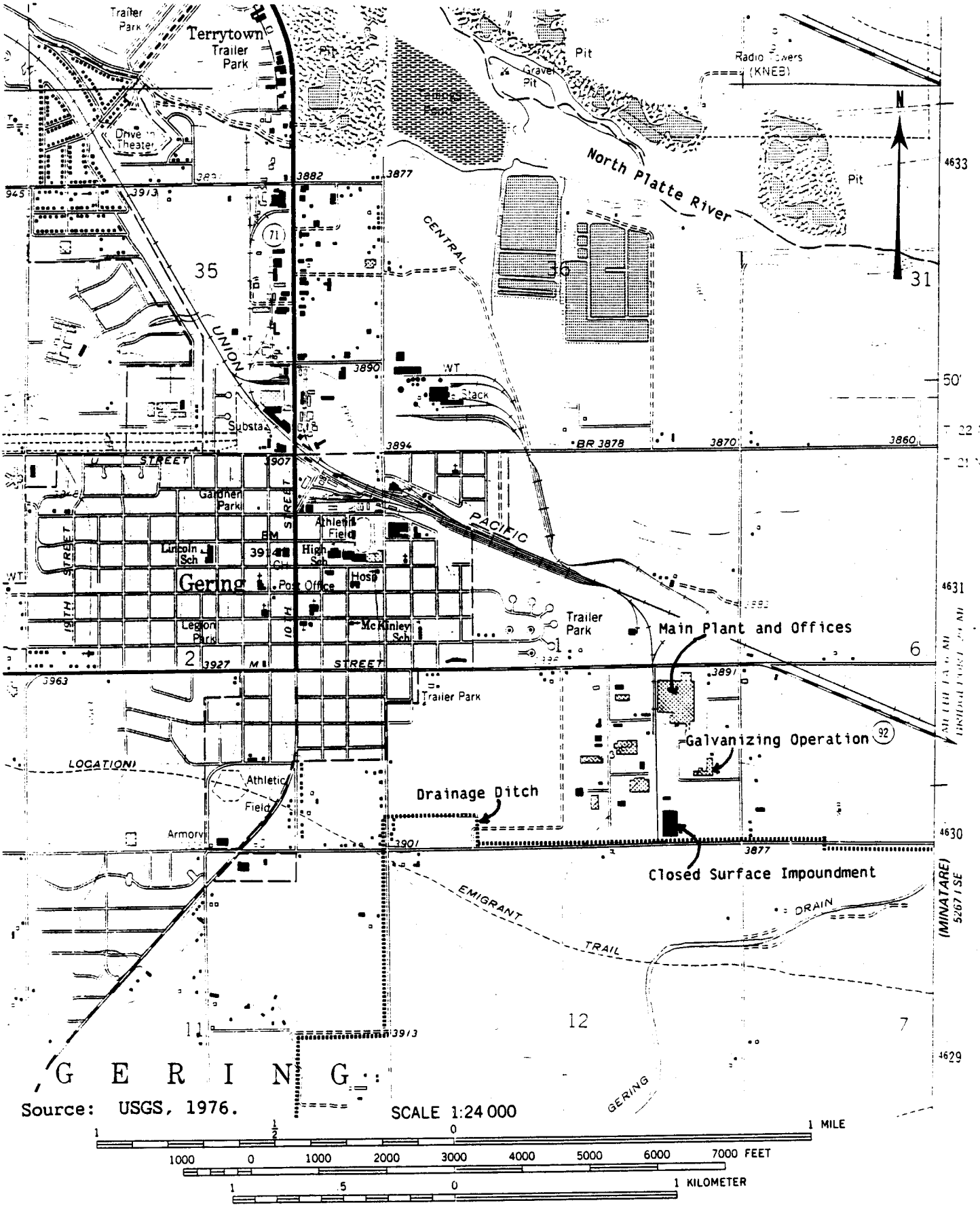


FIGURE 1
GENERAL LOCATION OF THE LOCKWOOD CORPORATION
FACILITY IN GERING, NEBRASKA

Manufacturing processes at the facility include machine forging, welding, galvanizing, fabrication, phosphatizing, painting, and assembly (NDEC, 1986a). Before 1984, spent pickle liquor from the galvanizing operation and chain plant was neutralized with anhydrous ammonia and conveyed by pipe to a surface impoundment located in the southwestern corner of the property (NDEC, 1986b). In June 1984, following a suspected release of approximately 5,000 gallons of wastes through a breach in the lining of the surface impoundment, the use of the surface impoundment to dispose of the spent pickle liquor ceased (NDEC, 1986a). Waste liquids from the galvanizing plant and the chain plant are no longer neutralized and are now stored in an underground tank (effluent tank) until the liquids are removed for offsite disposal as a hazardous waste (personal communication, R. Dugan, April 3, 1987).

The geology at the site is characterized by three layered geologic units. The upper unit consists of 2 to 4 feet of fill dirt over 7 to 10 feet of silty sand, and sandy silt alluvial soils (NDEC, 1986b). Below this unit lies 10 to 12 feet of unconsolidated sand and gravel with some interbedded silty and sandy clays (HWS, 1984). At depths of 19 to 25 feet below the ground surface lies the weathered bedrock surface of the Brule formation (HWS, 1984). The Brule formation is the principal water-bearing aquifer in the area. Recharge to the aquifer occurs primarily from infiltration of precipitation, irrigation, or other surface water (USGS, 1985). Lockwood has suggested that the ground water in the Brule formation is semiconfined to confined (HWS, 1984); however, this is disputed by NDEC because there is no evidence of confining layers at the interface between the unconsolidated soils and bedrock (NDEC, 1986b). It has also been suggested that high yield wells completed into the Brule formation may actually yield water from the overlying alluvium (McLaughlin, 1948).

1.2 Solid Waste Management Units and Areas of Concern

At the Lockwood facility, Versar identified five solid waste management units (SWMUs) during the PR and VSI. These include the closed

surface impoundment, the effluent tank, the solvent recycling system, the hazardous waste storage area, and the waste oil storage area (former hazardous waste storage area). In addition, based on information gathered during the VSI at the Lockwood facility, two other areas of concern were identified. These areas include the raw product storage area and the waste disposal area (scrap metal waste bins) east of the machine shop.

Each of the SWMUs and the other areas of concern are shown in Figure 2 and described briefly below. Further details on these areas are available in the Interim RFA Report (CDM FPC, 1987b).

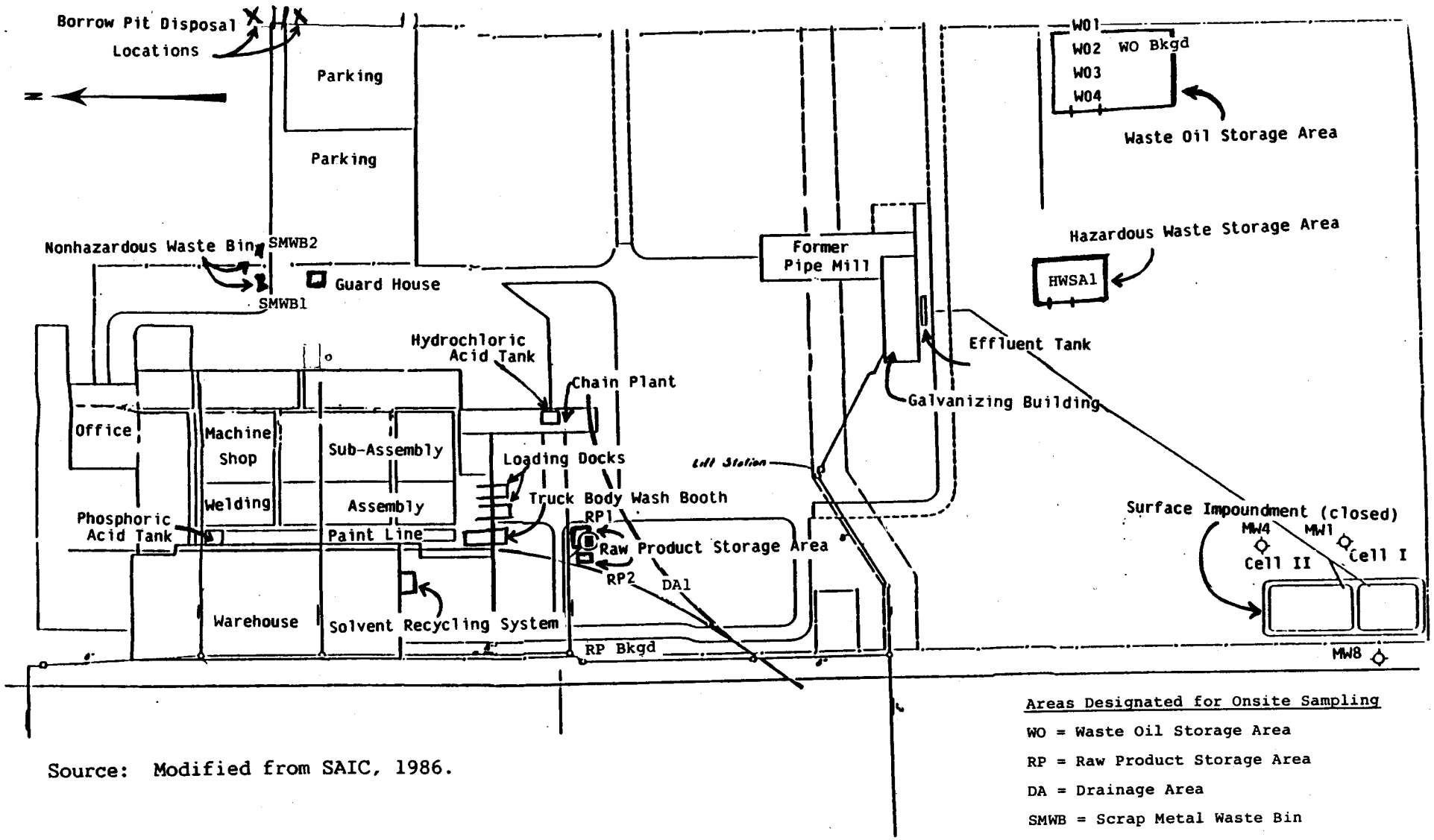
Closed Surface Impoundment

The surface impoundment is located in the southwestern corner of the Lockwood property. Between 1972 and 1984, neutralized spent pickle liquor was delivered to the impoundment for disposal via an underground pipe. Currently the cells are covered, the pipe has been sealed off, and closure activities for the surface impoundment have begun.

Effluent Tank

The effluent tank is a 40,000 gallon capacity in-ground tank located immediately south of the galvanizing plant. The tank receives non-neutralized acid wastes and spent coolant fluids. Wastes are stored for less than 90 days.

Additional historical information and construction details for the effluent tank were obtained during the SV. The original effluent tank was installed in November 1972 and was constructed of acid-resistant brick with an asphalt liner. In May 1984, when cleaning out the tank, the brick and liner were found to be loose. The tank was replaced in July 1984 with the current tank. The new tank was designed by Atlas Mineral & Chemicals, Mertztown, Pennsylvania, and installed by a local building contractor. The inner concrete tank is surrounded by double



Source: Modified from SAIC, 1986.

Areas Designated for Onsite Sampling

WO = Waste Oil Storage Area

RP = Raw Product Storage Area

DA = Drainage Area

SMWB = Scrap Metal Waste Bin

HWSA = Hazardous Waste Storage Area

◇ = Monitoring Well Locations

Approximate Scale
1 inch = 300 feet

FIGURE 2
SITE PLAN OF LOCKWOOD CORPORATION FACILITY IN GERING, NEBRASKA
SHOWING APPROXIMATE LOCATIONS OF SWMUs, OTHER AREAS OF CONCERN, AND AREAS FOR ONSITE SAMPLING

liner/brick layers (i.e., concrete, liner, brick, liner, brick). The liner is made of asphalt, and the bricks are secured with surathane mortar. The asphalt, bricks, and mortar are all acid-resistant (personal communication, B. Knowles, September 21, 1987).

Solvent Recycling System

The solvent recycling system is housed in a small shed attached to the southern side of the warehouse. The system has been used over the last year to recycle small quantities of solvents used in the painting operations including methyl ethyl ketone, xylene, and toluene. The paint sludges that are generated by the process are stored in drums in the hazardous waste storage area until they are taken offsite for disposal (NDEC, 1986a).

Hazardous Waste Storage Area

The hazardous waste storage area is a gravel-covered fenced area south of the galvanizing area. Drums of wastes, including caustic and acid sludge and paint sludge, are stored on pallets in this area until they are transported offsite for disposal.

Waste Oil Storage Area

Waste oils are stored in the southeast corner of the property in a dirt-covered fenced area. These wastes are stored in drums on pallets until they are transported offsite for salvage. Hazardous wastes were previously stored in this area.

Raw Product Storage Area

Raw products including paints, gear oils, lubricants, and other chemicals, are stored in the area west of the loading docks and south of the warehouse docks. Raw materials are stored in drums, cans, or tanks. Some storage containers are kept on concrete pads, while others are stored in unpaved areas.

Waste Disposal Area East of the Machine Shop (Scrap Metal Waste Bins)

East of the machine shop are two waste bins for nonhazardous waste (primarily scrap metal). These bins were discussed in the interim RFA report, but were not originally designated as an area of concern. During the SV, evidence of a potential release to soils resulted in further investigation in this area.

The scrap metal waste bins are located near the guard house near the northeast corner of the employee parking lot on the east side of the facility. One bin is located inside, or west of the fenceline. This bin is used for disposal of scrap steel from the fabrication processes. The second bin is located outside, or immediately east, of the fenceline. This bin receives scrap metal chips from the machine shop.

These bins are periodically emptied for offsite disposal. During the SV, a small bulldozer was scraping away the top layer of soil along with any metal shaving that had fallen in the area. The waste soil was placed in drums to be taken to a municipal landfill for disposal (personal communication, B. Knowles, September 21, 1987). Samples collected from this area were taken following the removal of the surficial soils.

Initially, Versar designated another area east of the machine shop as an area of concern: a borrow pit near the county road that has been used to dump spent nonhazardous coolant fluids prior to 1984 (personal communication, R. Dugan, April 3, 1987). No visual evidence of release was noted in the borrow pit area during the SV (see photographs 25 and 26, Appendix A) and no hazardous materials are known to be disposed of here, thus this area was not investigated further.

2.0 RFA SAMPLING VISIT OBJECTIVES

The primary objectives of the SV were to identify releases from any SWMUs, fill any data gaps identified during the PR and VSI, and assist in making final recommendations for further investigations at the facility. Authoritative (biased) sampling in areas suspected of releases, and discussions with site personnel, were used to meet these objectives. Based on the findings of the SV, final RFA recommendations have been made concerning the need for further action at the Lockwood facility.

Versar conducted the PR and VSI of the Lockwood facility in April 1987. The general areas to be sampled during the SV were determined during the VSI on April 3, 1987. Recommendations for sampling were discussed with the U.S. EPA Region VII primary contact, Mr. Wes Bartley.

The SV at the Lockwood facility was conducted between September 21 and 23, 1987. Before the initiation of sampling activities, a site tour was conducted with Lockwood and Versar representatives. During this site tour, Versar viewed all designated sampling areas. The locations of three soil sample points were changed from those originally designated in the Sampling Visit Work Plan because of observations made during this site tour. A summary of the areas that were sampled is presented in Section 3.3 of this report.

3.0 SAMPLING VISIT APPROACH

3.1 Sampling Visit Design and Rationale

During the VSI, several SWMUs and other areas of concern were identified where current or past waste handling storage or disposal activities indicated releases to the soil may have occurred. The specific areas in which surface soil samples were collected to determine releases are outlined in Section 3.3. Soil samples were recommended in areas where organic-based wastes were managed and where there was reason to suspect a release from information gathered during the PR, or where there was visual evidence of a release.

The approach used during the SV and the choice of analytical parameters are discussed in detail in the Sampling Visit Work Plan (CDM FPC, 1987c). Soil samples are analyzed for base/neutral/acid extractable organics (BNAs) and total metals. Ground-water samples were analyzed for volatile organic constituents (VOCs), total and dissolved metals, sulfates, and cyanide. Onsite measurements of pH and specific conductance of ground-water samples were also performed.

3.2 Summary of Sampling Visit Activities

Versar, Inc., represented by Ruth Dickinson and Alicia Fleitas, conducted this SV at the Lockwood Corporation facility in Gering, Nebraska, as part of the ongoing RFA. Sampling activities took place between September 21 and September 23, 1987. Individuals present during the SV, their affiliations, and the dates they were present are as follows:

Roy R. Dugan	Lockwood Corporation	9/21-9/23/87
Bob Knowles	Lockwood Corporation	9/21-9/23/87
Henry Pina	Lockwood Corporation	9/22-9/23/87
Harold Rupp	Lockwood Corporation	9/21/87
Mrs. Ronald Greckel	Homeowner	9/22/87
Max Miller	Ted B. Miller, Co.	9/22/87
Bill Boyle	City of Gering, Water Dept.	9/22/87
Jerry Carpenter	City of Gering, Water Dept.	9/22/87

Site activities began with a meeting with Roy Dugan and a tour of the facility. Sampling activities began with the collection of soil samples. Versar collected ten soil samples from five SWMUs and other areas of concern. One duplicate sample and two background soil samples were also collected. An outline of the soil sampling locations is provided in Section 3.3.

Ground-water samples were collected from three offsite supply wells and three onsite monitoring wells. One duplicate sample was collected from offsite supply wells and one from onsite monitoring wells. A field blank and equipment blank were poured for all analytical parameters, and a trip blank was submitted for VOC analysis.

3.3 Investigation Areas

Soil Sampling

Soil sampling was conducted in five areas of the Lockwood facility as designated in Figure 2, and included the collection of background soil samples. Sample locations were also photographed. Copies of these pictures are provided in Appendix A. The sampling areas are those where there has been a history of release, or possible releases were observed during the VSI or SV. These included the following:

1. Waste Oil Storage Area - Four shallow soil samples were collected in the waste oil storage area. Samples were collected from an area of oil-stained soil near an open drum filled with waste oil, an area of oil-stained soil amongst salvage parts, an area of brown stained soil near the empty drum storage area, and an oil-stained area near a row of sealed drums of waste oil. A background soil sample was collected along the eastern fenceline of the waste oil storage area.

2. Raw Product Storage Area - Two shallow soil samples were collected in the raw product storage area. One sample was collected near the storage drums in this area where the soil appeared oily. A second sample was collected from near the drainage area from the line stripper solvent tank where soil was yellow and caked. A background soil sample was collected along the western fenceline near the raw products storage area.

3. Drainage Swale - One shallow soil sample was collected from the drainage area along the west edge of the facility. The sample was collected from a low lying area southwest of the raw product storage area, and south of the warehouse.

4. Hazardous Waste Storage Area - One shallow soil sample was collected from the hazardous waste storage area located south of the galvanizing plant. The sample was collected from an area near the center of the fenced-in area, where the soils appeared to be discolored.

5. Scrap Metal Waste Bin Area - Two shallow soil samples and a duplicate sample were collected from the ground surrounding two scrap metal waste bins; one located just outside the facility's eastern fence, and one sample and a duplicate located just within the fence.

Exact sampling locations are described on the field data sheets provided in Appendix B.

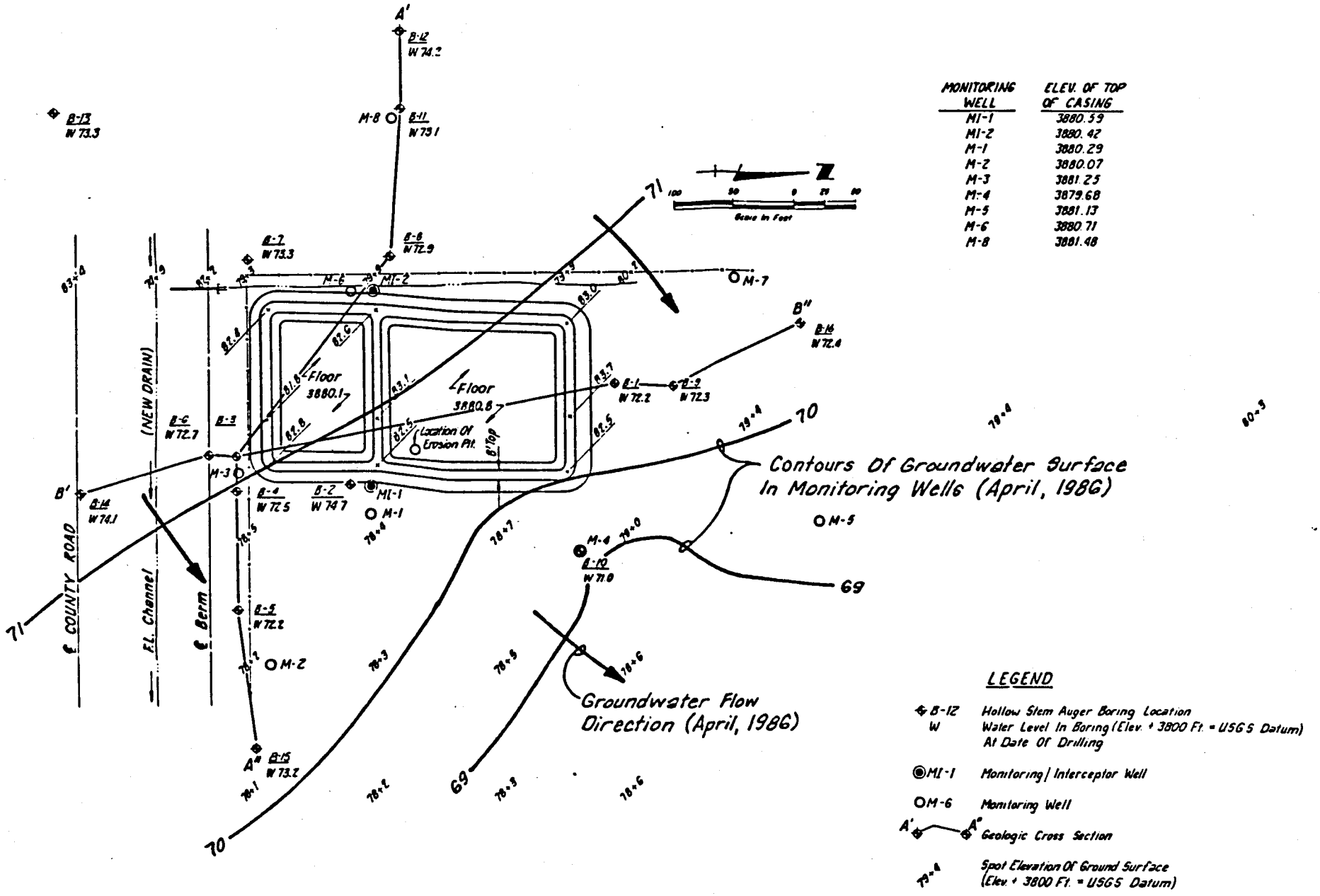
Ground-Water Sampling

The April 1984 release of neutralized pickle liquor from the surface impoundment led to subsequent closing of the impoundment and the installation of ten onsite ground-water monitoring wells (NDEC, 1984). As part of this SV, ground-water samples were collected from three of the ten monitoring wells (downgradient wells M-4 and M-1, and upgradient well M-8). The approximate locations of these wells are shown in Figure 3.

In addition to the onsite wells, two offsite private wells and one municipal well were sampled. The approximate locations of these wells are shown in Figure 4. The private wells are located approximately 2,600 feet north (Private Well A) and 2,000 feet northeast (Private Well B) of the Lockwood surface impoundment. Both wells are hydraulically downgradient of the facility. The municipal well (Municipal Well 6) is located approximately 1,500 feet north-northwest of the impoundment.

Additional Information

In addition to the sampling activities, additional information was gathered during the SV to fill data gaps that existed after the VSI. In



MONITORING WELL	ELEV. OF TOP OF CASING
MI-1	3880.59
MI-2	3880.42
M-1	3880.29
M-2	3880.07
M-3	3881.25
M-4	3879.68
M-5	3881.13
M-6	3880.71
M-8	3881.48

LEGEND

- B-12 / W — Hollow Stem Auger Boring Location; Water Level In Boring (Elev. + 3800 Ft. = USGS Datum) At Date Of Drilling
- MI-1 — Monitoring / Interceptor Well
- M-6 — Monitoring Well
- A' — A" — Geologic Cross Section
- 73.4 — Spot Elevation Of Ground Surface (Elev. + 3800 Ft. = USGS Datum)

FIGURE 3
GROUND-WATER MONITORING WELL LOCATIONS AND GROUND-WATER FLOW DIRECTION
AROUND THE SURFACE IMPOUNDMENT
LOCKWOOD CORPORATION
GERING, NEBRASKA
Source: Modified from HWS, 1986

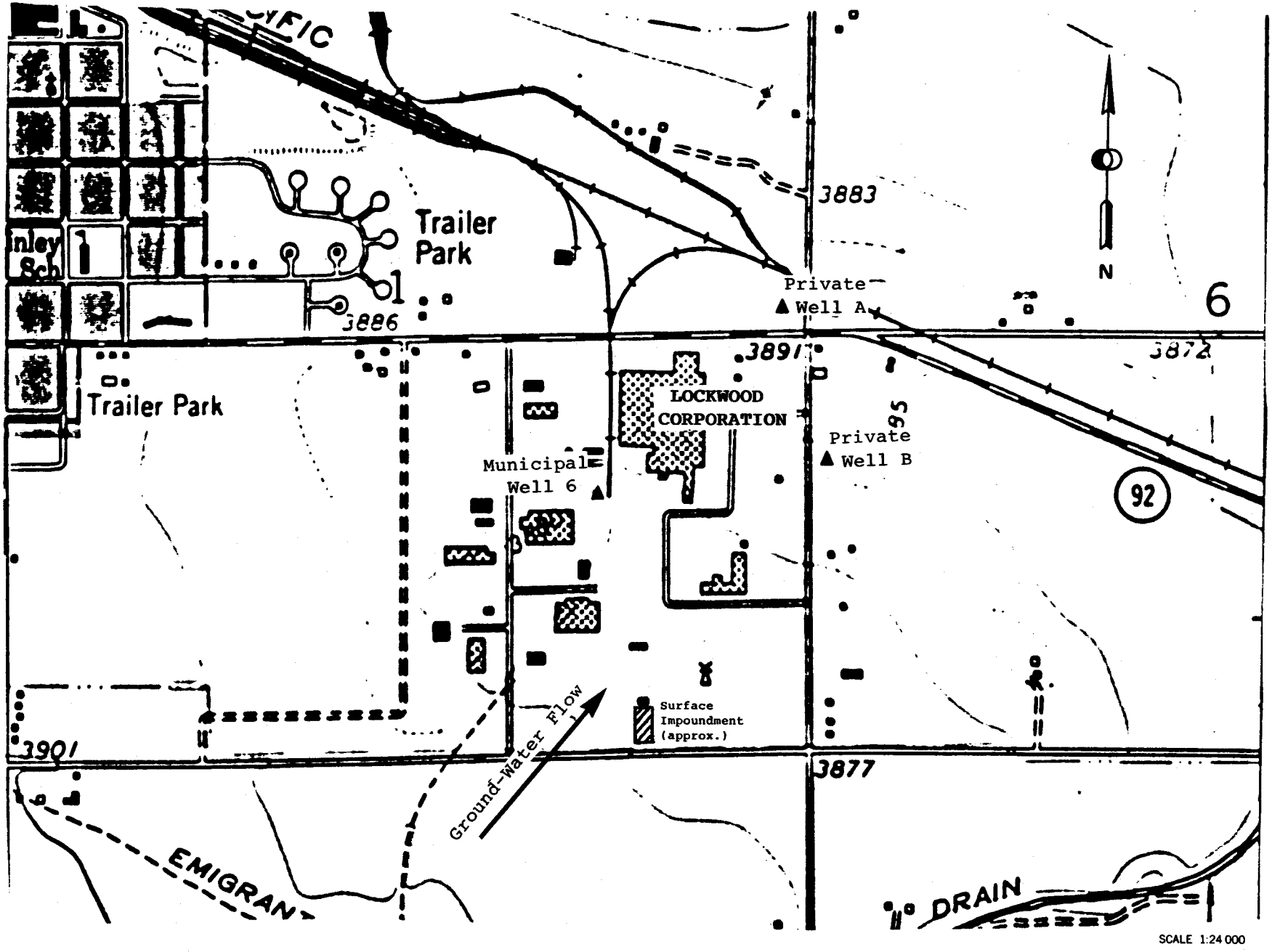


FIGURE 4
LOCATION OF OFFSITE SUPPLY WELLS NEAR LOCKWOOD CORPORATION
GERING, NEBRASKA
Source: Modified from NDEC, 1984

particular, additional information was obtained regarding the history and construction of the effluent tank. This information is presented in Section 1.2 of this report. In addition, tank inventory and pumping records were obtained (see Appendix C).

During the SV, Versar also attempted to obtain detailed information of the construction and age of the offsite private wells. The well owners were questioned; however, only limited information was supplied. Private Well A may date back to the 1950s, and Private Well B was installed in 1973. Well construction details for these wells were not available.

3.4 Sample Collection Procedures and Field Quality Assurance/ Quality Control

All environmental samples collected during the SV at the Lockwood facility were collected following procedures outlined in the "Sampling Visit Work Plan, Lockwood Corporation, Gering Nebraska" (CDM FPC, 1987c), and the "Quality Assurance Project Plan (QAPP) for Performing Sampling Visits of RCRA Facility Assessments for Sites in Region VII" (CDM FPC, 1987a). Strict adherence to QA/QC requirements set forth in these documents was practiced.

Ground-water samples from the onsite monitoring wells were split with the facility. Although Versar offered sample containers to the facility, Lockwood provided their own sample containers. Lockwood planned to use the samples as part of their quarterly monitoring program; therefore, they did not request splits of samples for each type of analysis. Specifically, Lockwood requested a split of the metals and sulfate samples. For each parameter, samples which were collected by equally splitting each bailer-full of water between Versar's and Lockwood's sample bottles. At one sampling location (well M-4), Lockwood requested extra sample volume for TOC, TOX, phenols, and nitrate analysis. Versar samples were not analyzed for these parameters. This extra volume was provided; however, these bottles were filled after all

other sample containers were filled. The facility did not request splits of soil samples, ground-water samples from offsite wells, or QC samples.

QC samples collected during the SV included an aqueous trip blank, field blank, and bailer equipment blank. Soil blanks, although available, are not routinely used. Duplicate samples were collected from one offsite well (Municipal Well 6), an onsite monitoring well (well M-4), and one soil sampling location (scrap metal waste bin area). Two background soil samples were also collected.

A standard chain-of-custody form was maintained for all samples. This form accompanied the samples in shipment to the U.S. EPA Region VII Laboratory. Region VII then forwarded the samples and appropriate paperwork to the designated CLP laboratories. At the conclusion of each day's sampling, a receipt for samples (a modified chain-of-custody) was filled out to document the samples collected that day. A facility representative signed this document and received a copy. Copies of all sample documentation are provided in Appendix D.

All field observations were noted in the field notebooks. Sampling information was noted on the field data sheets and in situ data sheets. Copies of all field documentation are given in Appendices B and D. Photographs were taken to indicate all sampling locations. Copies of the photographs taken during the SV are attached in Appendix A.

4.0 LABORATORY AND FIELD DATA

Section 4.1 reviews the historical analytical data for the Lockwood facility, including ground-water quality data from both onsite and offsite wells, and data on waste types used at the facility. The analytical data generated from the SV is presented and evaluated in Section 4.2 to determine any trends in ground-water quality, and to identify any potential releases from SWMUs or other areas of concern.

4.1 Historical Data

Ground-Water Quality

Lockwood currently has a total of ten onsite ground-water monitoring wells located around the surface impoundment (Figure 3). These wells are completed into the upper alluvium and do not monitor ground water in the Brule formation.

Historically, ground-water samples collected from downgradient monitoring wells revealed high concentrations of some metals and sulfates, and high values of specific conductance (NDEC, 1986b). Historical analytical data for these wells is presented in Table 1. Samples collected from the monitoring wells in 1985 and 1986 indicate a plume of ground-water contamination (as evidenced by specific conductance values) near the surface impoundment and centered near monitoring well M-4 (Figure 5) (HWS, 1986).

Historical ground-water quality data for three offsite supply wells (shown in Figure 4) is also available. The analytical results for the sampling of these wells in 1984 is provided in Table 2, and indicates no, concentrations of metals above drinking water standards.

Waste Types

Manufacturing processes at the Lockwood Facility include machining, forging, welding, galvanizing, fabrication, phosphatizing, painting, and assembly. The facility has several storage areas for raw products or

TABLE 1
HISTORICAL ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES COLLECTED FROM
ONSITE MONITORING WELLS, LOCKWOOD CORPORATION
GERING, NEBRASKA
Source: Modified From HWS, 1987

DATE SAMPLED	LABORATORY DESIGNATION	FIELD STATION	ELEV TOP OF CASING (MSL)	WELL DEPTH (FT)	WATER DEPTH (FT)	ELEV OF WATER LEVEL (MSL)	WATER TEMP (C) (fld)	pH (fld)	pH (lab)	SPEC. COND. (um/cm)(fld)	SPEC. CONB. (um/cm) (lab)	IRON* (mg/l)	TOTAL IRON (mg/l)	MANG* (mg/l)	TOTAL MANG (mg/l)	ZINC* (mg/l)	TOTAL ZINC (mg/l)	SULF (mg/l)	TOTAL ARSEN (mg/l)	TOTAL BAR (mg/l)	CAD* (mg/l)	TOTAL CAD (mg/l)	CHRO* (mg/l)	TOTAL CHRO (mg/l)	LEAD* (mg/l)	TOTAL LEAD (mg/l)	TOTAL MERC (mg/l)	TOTAL SELEN (mg/l)	TOTAL SILVER (mg/l)	SODUM* (mg/l)	TOTAL SODIUM (mg/l)
	* Dissolved Metals																															
EPA Interim Primary Drinking Water Standards																			0.05	1.0		0.01		0.05		0.05	0.0002	0.01	0.05		
Nebraska Title 118 Secondary Maximum Contaminant Levels													1.0		0.2		5														
07-Nov-85	20027	M-1	3880.3	25.0	8.3	3872.0	14.0	7.0	NA	2800	NA	4.3	5.2	2.5	2.5	0.399	0.387	1050	0.002	0.2	<0.005	<0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	<0.002	0.11	148	157
	20028	M-2	3880.1	30.4	8.2	3871.9	12.5	7.5	NA	1580	NA	<0.03	0.03	<0.01	<0.01	0.020	0.020	275	0.021	< 0.1	<0.005	<0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	<0.002	0.02	223	298
	20029	M-3	3881.2	28.9	8.9	3872.3	13.0	7.4	NA	1780	NA	0.21	1.52	0.42	0.42	0.167	0.173	430	0.006	0.1	<0.005	<0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	<0.002	< 0.01	175	233
	20030	M-4	3880.7	28.1	9.2	3871.5	13.0	6.7	NA	3600	NA	2.05	2.75	3.9	3.90	0.425	0.464	2000	<0.002	0.2	<0.005	<0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	<0.002	0.02	333	430
	20031	M-5	3881.1	26.7	9.9	3871.2	13.5	7.4	NA	1250	NA	0.21	0.27	<0.01	0.04	0.013	0.712	80	0.026	0.1	<0.005	<0.005	< 0.05	0.05	< 0.1	< 0.1	<0.0002	<0.002	0.02	163	203
	20032	M-6	3880.7	29.7	8.3	3872.4	13.0	7.5	NA	1530	NA	0.21	0.50	0.34	0.34	0.033	0.050	275	0.019	0.1	<0.005	<0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	<0.002	< 0.01	188	275
	20033	M-7	3880.7	28.7	9.0	3871.7	13.0	7.5	NA	1460	NA	0.13	0.22	<0.01	<0.01	0.044	0.020	120	0.023	0.1	<0.005	<0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	<0.002	< 0.01	198	258
	20034	M-8	3881.5	29.6	8.9	3872.6	13.5	7.7	NA	1410	NA	<0.03	0.73	<0.01	0.02	0.037	0.049	120	0.021	0.1	<0.005	<0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	<0.002	0.05	195	230
	20025	MI-1	3880.6	NA	8.6	3872.0	13.5	7.1	NA	2300	NA	0.26	1.07	0.90	1.08	0.295	0.317	700	0.005	0.1	<0.005	<0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	<0.002	0.02	203	260
	20026	MI-2	3880.4	NA	8.0	3872.4	13.5	7.6	NA	1340	NA	<0.03	1.73	0.38	0.40	0.042	0.050	220	0.017	0.2	<0.005	<0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	<0.002	0.03	175	212
25-Feb-86	20520	M-1	3880.3	25.0	9.4	3870.9	11.3	7.2	NA	3800	NA	3.04	5.70	2.6	2.2	0.379	0.491	915	0.004	0.50	<0.005	<0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	<0.002	0.08	164	167
	20521	M-2	3880.1	30.4	9.2	3870.9	11.7	7.3	NA	1400	NA	<0.05	8.20	<0.01	21	0.017	0.825	300	0.024	0.14	<0.005	<0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	0.013	< 0.01	232	240
	20522	M-3	3881.2	28.9	9.9	3871.3	12.3	7.5	NA	1600	NA	0.54	2.89	0.32	0.36	0.166	0.234	326	0.026	0.33	<0.005	<0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	0.007	< 0.01	183	183
	20523	M-4	3880.7	28.1	10.3	3870.4	12.0	6.9	NA	5450	NA	3.60	7.50	5.0	4.8	0.574	0.659	1830	0.003	0.62	<0.005	0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	0.005	< 0.01	315	348
	20524	M-5	3881.1	26.7	11.1	3870.0	11.8	7.5	NA	1000	NA	0.05	0.60	0.02	0.10	0.035	0.970	30	0.018	0.18	<0.005	0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	<0.002	< 0.01	178	176
	20525	M-6	3880.7	29.7	9.1	3871.6	12.3	7.5	NA	1200	NA	<0.05	1.00	0.12	0.14	0.031	0.067	268	0.028	0.16	<0.005	<0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	0.006	< 0.01	208	214
	20526	M-7	3880.7	28.7	10.2	3870.5	12.4	7.4	NA	1150	NA	0.05	0.52	<0.01	0.06	0.028	0.400	100	0.18	0.18	<0.005	<0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	0.004	0.03	163	166
	20527	M-8	3881.5	29.6	9.8	3871.7	12.3	7.5	NA	1100	NA	<0.05	0.39	<0.01	0.02	0.026	0.217	164	0.20	0.18	<0.005	<0.005	< 0.05	< 0.05	< 0.1	< 0.1	<0.0002	0.004	0.01	174	176
10-Apr-86	20734	M-1	3880.3	25.0	9.7	3870.6	10.7	6.9	NA	2600	NA	3.2	9.16	2.1	1.65	0.353	0.38	920	NA	NA	<0.005	<0.005	< 0.05	< 0.01	< 0.1	<0.025	NA	NA	NA	147	148
	20735	M-2	3880.1	30.4	9.5	3870.6	11.5	7.3	NA	1500	NA	<0.05	0.35	<0.01	2.98	0.033	0.20	406	NA	NA	<0.005	<0.005	< 0.05	< 0.01	< 0.1	<0.025	NA	NA	NA	220	229
	20736	M-3	3881.2	28.9	10.2	3871.0	11.4	7.3	NA	1500	NA	0.69	4.28	0.35	0.34	0.159	0.27	540	NA	NA	<0.005	<0.005	< 0.05	< 0.01	< 0.1	<0.025	NA	NA	NA	178	178
	20737	M-4	3880.7	28.1	10.7	3870.0	11.5	6.8	NA	4800	NA	3.0	8.30	4.5	4.20	0.622	0.73	1630	NA	NA	<0.005	<0.005	< 0.05	0.03	< 0.1	<0.025	NA	NA	NA	32[illegible]	320
	20738	M-5	3881.1	26.7	11.3	3869.8	11.0	7.4	NA	900	NA	<0.05	0.08	0.02	0.10	0.020	0.04	150	NA	NA	<0.005	<0.005	< 0.05	< 0.01	< 0.1	<0.025	NA	NA	NA	173	172
	20739	M-6	3880.7	29.7	9.5	3871.2	11.7	7.5	NA	1300	NA	<0.05	0.70	0.15	0.13	0.056	0.05	332	NA	NA	<0.005	<0.005	< 0.05	< 0.01	< 0.1	0.03	NA	NA	NA	216	220
	20740	M-7	3880.7	28.7	10.4	3870.3	12.2	7.4	NA	1300	NA	<0.05	0.14	<0.01	0.01	0.026	0.04	306	NA	NA	<0.005	<0.005	< 0.05	< 0.01	< 0.1	<0.025	NA	NA	NA	218	217
	20741	M-8	3881.5	29.6	10.1	3871.4	11.5	7.5	NA	1100	NA	<0.05	0.16	<0.01	0.02	0.020	0.05	320	NA	NA	<0.005	<0.005	< 0.05	< 0.01	< 0.1	<0.025	NA	NA	NA	209	207
29-Dec-86	21792	M-1	3880.3	25.0	8.7	3871.6	12.4	7.0	NA	3250	NA	NA	6.5	NA	1.60	NA	0.41	1500	0.006	NA	NA	0.009	NA	< 0.05	NA	< 0.01	NA	<0.002	0.02	NA	157
	21793	M-2	3880.1	30.4	8.5	3871.6	11.9	7.4	NA	1600	NA	NA	0.1	NA	0.25	NA	0.07	320	0.019	NA	NA	0.005	NA	< 0.05	NA	< 0.01	NA	<0.002	0.01	NA	100
	21794	M-3	3881.2	28.9	9.2	3872.0	12.3	7.2	NA	1900	NA	NA	1.8	NA	0.25	NA	0.16	520	0.031	NA	NA	0.006	NA	< 0.05	NA	< 0.01	NA	<0.002	0.04	NA	90
	21795	M-4	3880.7	28.1	9.5	3871.2	11.9	6.8	NA	5350	NA	NA	4.7	NA	3.60	NA	0.78	2400	0.020	NA	NA	0.012	NA	< 0.05	NA	0.01	NA	<0.002	0.02	NA	200
	21796	M-5	3881.1	26.7	10.1	3871.0	12.7	7.4	NA	1050	NA	NA	< 0.1	NA	0.21	NA	0.05	120	0.020	NA	NA	<0.005	NA	< 0.05	NA	< 0.01	NA	<0.002	< 0.01	NA	122
	21797	M-6	3880.7	29.7	8.5	3872.2	12.4	7.4	NA	1400	NA	NA	0.1	NA	0.15	NA	0.04	280	0.022	NA	NA	0.005	NA	< 0.05	NA	< 0.01	NA	<0.002	0.01	NA	90
	21798	M-7	3880.7	28.7	9.2	3871.5	12.1	7.5	NA	1200	NA	NA	< 0.1	NA	0.08	NA	0.06	180	0.024	NA	NA	<0.005	NA	< 0.05	NA	0.01	NA	<0.002	0.01	NA	97
	21799	M-8	3881.5	29.6	9.2	3872.3	12.6	7.4	NA	1400	NA	NA	< 0.1	NA	0.03	NA	0.02	260	0.024	NA	NA	0.006	NA	< 0.05	NA	< 0.01	NA	<0.002	0.01	NA	110

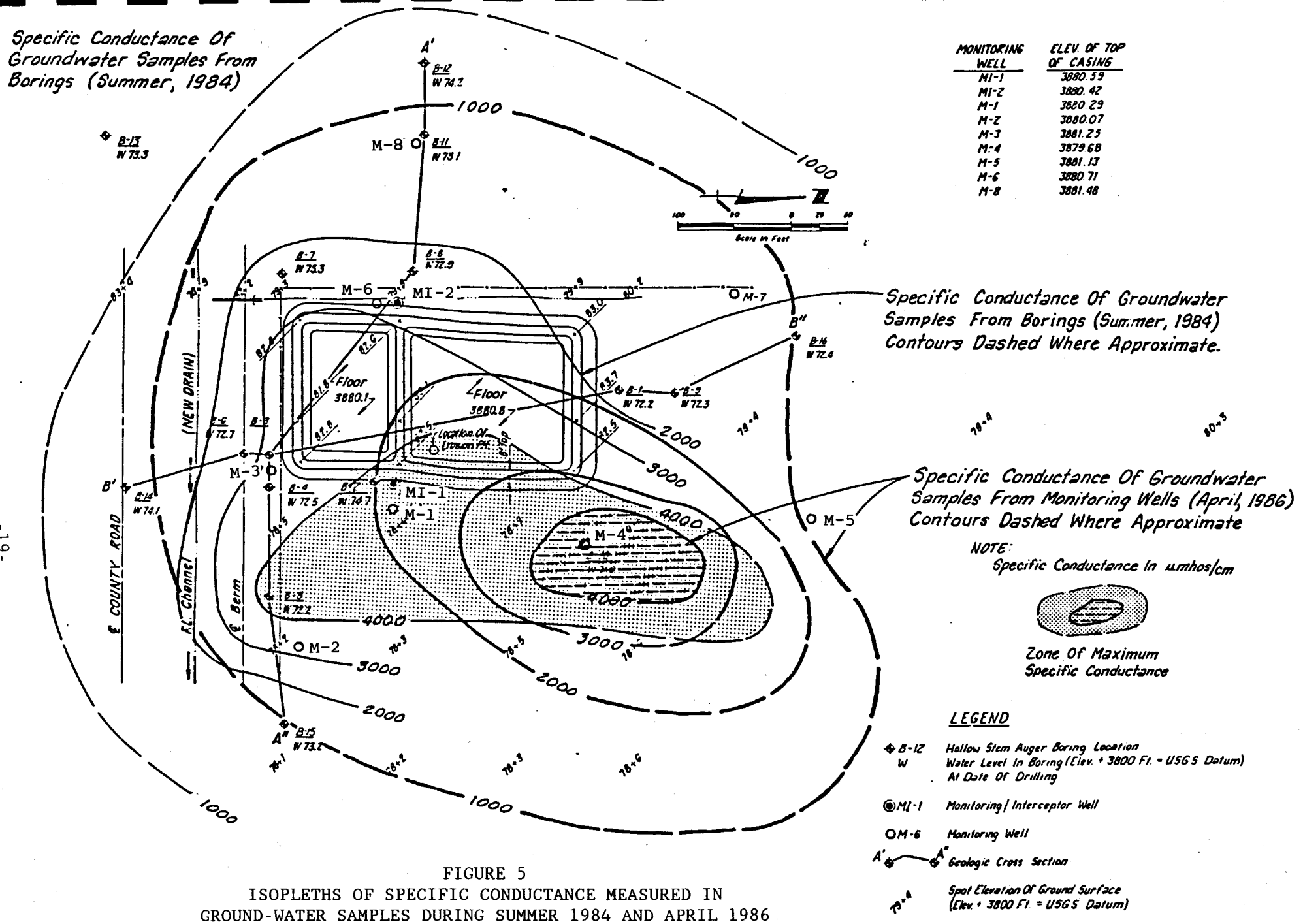


FIGURE 5
ISOPLETHS OF SPECIFIC CONDUCTANCE MEASURED IN
GROUND-WATER SAMPLES DURING SUMMER 1984 AND APRIL 1986
NEAR THE SURFACE IMPOUNDMENT, LOCKWOOD CORPORATION, GERING, NEBRASKA
Source: Modified From HWS, 1986

TABLE 2
ANALYTICAL RESULTS FOR SAMPLES COLLECTED BY
NDEC ON APRIL 18, 1984
FROM GERING MUNICIPAL WELL 6 AND TWO PRIVATELY-OWNED WELLS
NEAR LOCKWOOD CORPORATION
GERING, NEBRASKA

Parameters	Sample Location			EPA Interim Primary Drinking Water Standards (mg/l)
	Municipal Well (mg/l)	Private A (mg/l)	Private B (mg/l)	
Arsenic	.014	.022	.024	0.05
Lead	.013	.012	.014	0.05
Zinc	.012	.027	.015	5.0[1]
Chromium	.006	.004	.005	0.05
Cadmium	.002K	.002K	.002K	0.01
Silver	.0005K	.0005K	.0005K	0.05
Selenium	.005u	.005u	.005u	0.01
Chromium VI	.003u	.003u	.003u	Not given

u = analyzed for, but not detected.
K = Actual value known to be less than value given.

[1]Zinc is a secondary drinking water parameter.

Source: NDEC, 1984.

wastes. The areas include the raw product storage area, the hazardous waste storage storage area, the effluent tank, the waste oil storage area, and the scrap metal waste bin area. Onsite storage of waste and raw materials at these various locations around the facility may have resulted in release to the soil by deliberate dumping or poor waste management practices. There is no historical data which indicates that releases to the soils from the onsite storage of hazardous materials in drums or bins have been considered. Visual evidence of releases to the soils in several materials storage areas prompted Versar to collect and analyze shallow soil samples for organics and metals. Analytical data from these samples will be compared in Section 4.3 of this report to the types of waste or raw materials which are present at the Lockwood facility.

On April 18, 1984, NDEC conducted a sampling event at the Lockwood facility to determine whether waste streams at the Lockwood facility should be classified as hazardous. Samples of sludges from the paint operations indicated high concentrations of lead (18,120 mg/kg), zinc (8,050 mg/kg), and chromium (3,180 mg/kg). Sludge samples from the neutralizer tank and surface impoundment indicated high levels of lead (675 mg/kg and 9,003 mg/kg) and zinc (95,640 mg/kg and 34,088 mg/kg) (NDEC, 1984).

4.2 Analytical Data from the Sampling Visit

During the sampling visit, both field and laboratory analytical data were generated. Field analytical data for pH and specific conductance measurements are presented in Appendix B. Data from the laboratory analysis of samples collected during the SV are presented in Appendix E. The following sections discuss the analytical data by sample matrix and location.

Onsite Soil Sampling

During the September 1987 SV, Versar collected samples for laboratory analysis of shallow surface soils from the storage areas for

hazardous wastes, waste oils, raw products, and scrap metals; and from the drainage area from the raw products storage area. Two background soil samples were also collected from near the waste oil storage area and the raw product storage area, as described previously. A duplicate sample was collected from the scrap metal waste bin area. Samples were analyzed for BNAs and total metals. Tables 3, 4, 5, and 6 summarize the individual compounds detected in soil samples collected from the waste oil storage area, the raw product storage area, the scrap metal waste bins, and the hazardous waste storage area, respectively. Analysis for the full Target Compound List was performed; however, only those compounds that were found at levels above the detection limit are listed in these tables. Appendix E presents the complete set of analytical data for these samples.

For several of the samples the detection limits for the organic compounds were extremely high (25 - 240 ppm). This may have been due to dilution of the sample prior to analysis. Very few organic compounds were detected in the soil samples; however, this may be due to these high detection limits.

The only detected organics were found in samples from the raw product storage area, the hazardous waste storage area, and the scrap metal waste bin area. Naphthalene (540 and 7.3 ppm) and 2-methylnaphthalene (110 and 4.8 ppm) were detected in both samples collected from the raw product storage area. Bis(2-ethylhexyl)phthalate was detected in the sample from the hazardous waste storage area (2.1 ppm) and in one of the samples from the scrap metal waste bin area (0.49 ppm). No organic compounds were detected in either of the background soil samples.

Soil metal concentrations were compared with background values to determine whether a release from a unit had occurred. In addition, values were compared with common levels of metals found in natural soils (EPA, 1983).

TABLE 3

ANALYTICAL RESULTS FOR SOIL SAMPLES COLLECTED FROM THE WASTE OIL STORAGE AREA (WOSA)
LOCKWOOD CORPORATION, GERING, NEBRASKA, SEPTEMBER 1987

(Results expressed in mg/kg)

	WOSA Location 1	WOSA Location 2	WOSA Location 3	WOSA Location 4	Background Soil	Common Range for Natural Soils (EPA, 1983)
ORGANIC COMPOUNDS						
Naphthalene	<25	<25	<23	<0.83	<0.87	
2-Methylnaphthalene	<25	<25	<23	<0.83	<0.87	
Bis(2-Ethylhexyl)phthalate	<25	<25	<23	<0.83	<0.87	
INORGANIC COMPOUNDS						
Silver	<2.5	<2.5	<2.3	<2.3	<2.5	0.01 - 5
Aluminum	12,000	8,600	<4,800	6,400	9,900	10,000 - 300,000
Arsenic	<25	<25	<23	54	<25	1 - 50
Barium	320	270	200	290	250	100 - 3,000
Cadmium	1.8	1.3	1.4	1.6	2.0	0.01 - 0.7
Cobalt	5.2 M	4.4 M	3.0 M	2.7 M	4.8 M	1 - 40
Chromium	12	12	6.5	11	11	1 - 1,000
Copper	16	13	8.5	10	15	2 - 100
Iron	12,000	8,900	4,900	6,400	9,300	
Manganese	470 J	390 J	310 J	320 J	370 J	20 - 3,000
Nickel	10 M	5.7 M	4.3	5.3 M	9.0 M	5 - 500
Lead	19 J	40 J	11 J	26 J	20 J	2 - 200
Vanadium	27	19	14	19	20	20 - 500
Zinc	77	250	150	80	94	10 - 300
Calcium	31,000	30,000	20,000	33,000	26,000	
Magnesium	7,200	5,000	2,800	3,700	5,900	600 - 6,000
Sodium	520 M	410 M	380 M	320 M	410 M	
Potassium	3,200	3,300	2,100	2,600	4,100	

Data Reporting Qualifiers:

J Data reported but not valid by approved QC procedures.

M Detected but below the level for accurate quantification.

TABLE 4

ANALYTICAL RESULTS FOR SOIL SAMPLES COLLECTED FROM THE RAW PRODUCTS STORAGE AREA (RPSA)
LOCKWOOD CORPORATION, GERING, NEBRASKA, SEPTEMBER 1987

(Results expressed in mg/kg)

	RPSA Location 1	RPSA Location 2	Drainage Area	Background Soil	Common Range for Natural Soils (EPA, 1983)
ORGANIC COMPOUNDS					
Naphthalene	540	7.3 M	<0.75	<0.81	
2-Methylnaphthalene	110	4.8	<0.75	<0.81	
Bis(2-Ethylhexyl)phthalate	<50	<23	<0.75	<0.81	
INORGANIC COMPOUNDS					
Silver	<2.6	1.7 M	<2.2	<2.3	0.01 - 5
Aluminum	8,200	4,700	4,800	11,000	10,000 - 300,000
Arsenic	15	26	42	<23	1 - 50
Barium	220	130	130	230	100 - 3,000
Cadmium	1.3 M	2.3	1.0 M	1.8	0.01 - 0.7
Cobalt	4.8 M	3.4 M	2.4 M	4.4 M	1 - 40
Chromium	76	35	43	11	1 - 1,000
Copper	12	14	18	12	2 - 100
Iron	8,200	6,600	4,800	11,000	
Manganese	270 J	230 J	160 J	290 J	20 - 3,000
Nickel	6.8 M	6.7 M	5.0 M	8.1 M	5 - 500
Lead	306 J	204 J	600 J	12 J	2 - 200
Vanadium	20	17	11 M	27	20 - 500
Zinc	74	300	81	52	10 - 300
Calcium	25,000	23,000	16,000	26,000	
Magnesium	5,800	2,400	2,700	6,200	600 - 6,000
Sodium	720 M	280 M	290 M	460 M	
Potassium	2,800	1,600	2,000	240 M	

Data Reporting Qualifiers:

J Data reported but not valid by approved QC procedures.

M Detected but below the level for accurate quantification.

TABLE 5

ANALYTICAL RESULTS FOR SOIL SAMPLES COLLECTED FROM THE SCRAP METAL WASTE BIN (SMWB)
LOCKWOOD CORPORATION, GERING, NEBRASKA, SEPTEMBER 1987

(Results expressed in mg/kg)

	SMWB Location 1	SMWB Location 1 (dup)	SMWB Location 2	Common Range for Natural Soils (EPA, 1983)
ORGANIC COMPOUNDS				
Naphthalene	<21	<23	<0.85	
2-Methylnaphthalene	<21	<23	<0.85	
Bis(2-Ethylhexyl)phthalate	<21	<23	0.49 M	
INORGANIC COMPOUNDS				
Silver	<2.1	<2.1	<2.4	0.01 - 5
Aluminum	1,700	1,500	11,000	10,000 - 300,000
Arsenic	11	<21	<24	1 - 50
Barium	140	100	180	100 - 3,000
Cadmium	21	19	10	0.01 - 0.7
Cobalt	14	12	7.0 M	1 - 40
Chromium	260	230	62	1 - 1,000
Copper	610	580	160	2 - 100
Iron	160,000	140,000	55,000	
Manganese	150 J	1,600 J	590 J	20 - 3,000
Nickel	18	150	55	5 - 500
Lead	27 J	210 J	44 J	2 - 200
Vanadium	4.3 M	35	36	20 - 500
Zinc	99	750	130	10 - 300
Calcium	8,600	13,000	20,000	
Magnesium	240 M	5,800	5,000	600 - 6,000
Sodium	<1,060	440 M	930 M	
Potassium	1,100	930 M	2,800	

Data Reporting Qualifiers:

J Data reported but not valid by approved QC procedures.

M Detected but below the level for accurate quantification.

TABLE 6

ANALYTICAL RESULTS FOR SOIL SAMPLES COLLECTED FROM THE HAZARDOUS WASTE STORAGE AREA (HWSA)
LOCKWOOD CORPORATION, GERING, NEBRASKA, SEPTEMBER 1987

(Results expressed in mg/kg)

	HWSA Location 1	Common Range for Natural Soils (EPA, 1983)
ORGANIC COMPOUNDS		
Naphthalene	<0.72	
2-Methylnaphthalene	<0.72	
Bis(2-Ethylhexyl)phthalate	2.1	
INORGANIC COMPOUNDS		
Silver	<2.1	0.01 - 5
Aluminum	2,500	10,000 - 300,000
Arsenic	4.7	1 - 50
Barium	109	100 - 3,000
Cadmium	5.1	0.01 - 0.7
Cobalt	1.9 M	1 - 40
Chromium	17	1 - 1,000
Copper	14	2 - 100
Iron	8,800	
Manganese	210 J	20 - 3,000
Nickel	13	5 - 500
Lead	600 J	2 - 200
Vanadium	8.8 M	20 - 500
Zinc	15,000	10 - 300
Calcium	9,900	
Magnesium	1,300	600 - 6,000
Sodium	600	
Potassium	521 M	

Data Reporting Qualifiers:

J Data reported but not valid by approved QC procedures.

M Detected but below the level for accurate quantification.

Metals analyses indicated that zinc was slightly elevated in two of the samples collected from the waste oil storage area (250 and 150 ppm) compared to background levels (94 ppm). The level of lead in one of the samples (40 ppm) was twice the level found in the background sample (20 ppm); however, this data was flagged due to unapproved QC procedures. Levels of both zinc and lead were within the common range for natural soils. Arsenic was detected in one of the samples (54 ppm) at levels slightly above the common range for natural soils (1 - 50 ppm).

In the raw product storage area levels of arsenic, chromium, lead, and zinc exceeded the levels detected in the background sample from this area. Elevated levels of these same metals were also detected in the sample collected from the drainage area. Although the data for lead was flagged because of inadequate QC, lead values reported for the two samples collected from the raw product storage area and the drainage area (306, 204, and 600 ppm, respectively) were significantly higher than the background sample (12 ppm) and exceeded the common range for lead in natural soils (2 - 200 ppm). Arsenic was detected in all three samples (15, 26, and 42 ppm, respectively) but was not detected in the background sample. Chromium was detected in the three samples (76, 35, and 43 ppm, respectively) at levels higher than in background soils (11 ppm). Zinc was detected at a significantly higher concentration in the second sample collected from the raw product storage area (300 ppm) than was detected in the background soil sample (52 ppm).

Samples collected from the area around the scrap metal waste bins had elevated levels of cadmium, copper, and iron. Cadmium concentrations (10 - 21 ppm) exceeded the common range for this metal in natural soils (0.01 - 0.7 ppm). Copper levels (160 - 610 ppm) also exceeded the common range for this metal (2 - 100 ppm). Iron concentrations ranged from 55,000 to 160,000 ppm, compared to background soil values at other locations on the Lockwood facility of 9,300 and 11,000 ppm. Levels of manganese, lead, and zinc also appear to be elevated compared to

background results; however, the data for these constituents is difficult to evaluate due to poor comparison of data from duplicate sample analyses.

In the hazardous waste storage area, levels of cadmium, lead, and zinc exceeded the common range for these metals in natural soils. Cadmium levels (5.1 ppm) exceeded the common range of 0.01 - 0.7 ppm, lead (600 ppm) exceeded the common range of 2 - 200 ppm, and zinc levels (15,000 ppm) were significantly higher than the common range of 10 - 300 ppm. The analytical data for lead was flagged due to unapproved QC procedures.

Onsite Ground-Water Sampling

During the September 1987 SV, Versar sampled two downgradient (wells M-1 and M-4) and one upgradient monitoring well (well M-8) around the surface impoundment to establish an independent confirmation of ground-water contamination and to determine any changes in ground-water quality since the last round of ground-water sampling by Lockwood in December 1986. A duplicate sample was collected from monitoring well M-4. A field blank, equipment blank, and trip blank were also collected.

Samples were analyzed for VOCs, total and dissolved metals, cyanide, and sulfates. Table 7 is a summary of the results for these analyses. Field analytical data for pH and specific conductance are also included in this table. Only parameters with reported values above detection limits are shown in this table. For instance, volatile organics were not detected in any of the onsite ground-water samples; therefore, these compounds are not listed. A complete set of analytical data for onsite ground-water samples is presented in Appendix E.

In Table 7, reported values for certain metals and cyanide are compared with referenced values. These referenced values correspond to state or Federal drinking water standards or guidelines. In addition, analytical results from the samples collected during the SV are compared to historical analytical data for downgradient wells M-1 and M-4, and upgradient well M-8 (Tables 8, 9, and 10, respectively).

TABLE 7

ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES COLLECTED FROM ONSITE MONITORING WELLS, LOCKWOOD CORPORATION, GERING, NEBRASKA SEPTEMBER 1987

	Units	Monitoring Well M-1	Monitoring Well M-4	Monitoring Well M-4 (duplicate)	Monitoring Well M-8	Referenced Values
FIELD PARAMETERS						
Specific Conductance	umhos/cm	1,250	2,000	2,000	1,025	
pH		6.6	6.5	6.5	7.0	6.5-8.5 (d)
METALS						
Arsenic (total)	ug/l	<10	<100	<100	<100	50 (a,b)
(dissolved)	ug/l	<10	<10	<10	20	
Barium (total)	ug/l	35 M	<200	<200	40 M	1000 (a,b)
(dissolved)	ug/l	29 M	<200	<200	28 M	
Calcium (total)	ug/l	360,000	200,000	340,000	68,000	NA
(dissolved)	ug/l	320,000	310,000	310,000	56,000	
Iron (total)	ug/l	12,000	9,200	13,000	280	300(d);1000(c)
(dissolved)	ug/l	9,800	11,000	11,000	110	
Manganese (total)	ug/l	2,900	3,000	4,200	34	50 (d)
(dissolved)	ug/l	2,600	4,000	3,900	<15	
Magnesium (total)	ug/l	34,000	98,000	140,000	24,000	NA
(dissolved)	ug/l	31,000	130,000	130,000	21,000	
Potassium (total)	ug/l	22,000	43,000	45,000	16,000	NA
(dissolved)	ug/l	13,000	15,000	50,000	8,900	
Selenium (total)	ug/l	I	I	I	I	10 (a,b)
(dissolved)	ug/l	I	I	I	<5.0	
Sodium (total)	ug/l	120,000	190,000	250,000	170,000	NA
(dissolved)	ug/l	110,000	240,000	240,000	150,000	
Zinc (total)	ug/l	530	780	1,100	21	5000 (c,d)
(dissolved)	ug/l	470	1,000	990	<20	
OTHER PARAMETERS						
Cyanide	ug/l	<10	14 J	10 J	<10	200 (e,f)
Sulfate	mg/l	1,480	2,500	2,720	270	NA

(continued)

TABLE 7

ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES COLLECTED FROM ONSITE MONITORING WELLS, LOCKWOOD CORPORATION, GERING, NEBRASKA
SEPTEMBER 1987
(continued)

(a) Source: National Primary Drinking Water Regulations, Maximum Contaminant Levels, Proposed Rules: Federal Register, 40 CFR 141, November 13, 1985.

(b) Source: Nebraska Department of Environmental Control, 1978, Title 118 - Ground-Water Protection Standards, Primary (Health) Maximum Contaminant Levels.

(c) Source: Nebraska Department of Environmental Control, 1978, Title 118 - Ground-Water Protection Standards, Secondary (Aesthetic) Maximum Contaminant Levels.

(d) Source: National Secondary Drinking Water Regulations, Proposed Rules: Federal Register, 40 CFR 143, April 2, 1986.

(e) Source: National Primary Drinking Water Regulations, Recommended Maximum Contaminant Levels, Proposed Rules: Federal Register, 40 CFR 141, November 13, 1985.

(f) Source: U.S. Public Health Service's Suggested Drinking Water Standard, Proposed Rules for Delisting: Federal Register, 40 CFR 261, November 27, 1985.

Data Reporting Qualifiers:

J Data reported but not valid by approved QC procedures.

M Detected but below the level for accurate quantification.

I Invalid data/sample, value not reported.

TABLE 8

HISTORICAL ANALYTICAL DATA FOR MONITORING WELL M-1
LOCKWOOD CORPORATION, GERING, NEBRASKA

	UNITS	11/7/85	2/25/86	4/10/86	12/29/86	9/23/87 (Versar SV)
FIELD PARAMETERS						
Specific Conductance	umhos/cm	2,800	3,800	2,600	3,250	1,250
pH		*7.0	7.2	6.9	7.0	6.6
METALS						
Arsenic (total)	ug/l	2	4	---	6	<10
(dissolved)	ug/l	---	---	---	---	<10
Barium (total)	ug/l	200	500	---	---	35 M
(dissolved)	ug/l	---	---	---	---	29 M
Cadmium (total)	ug/l	<5	<5	<5	9	<5
(dissolved)	ug/l	<5	<5	<5	---	<5
Chromium (total)	ug/l	<50	<50	<10	<50	<10
(dissolved)	ug/l	<50	<50	<50	---	<10
Iron (total)	ug/l	5,200	5,700	9,160	6,500	12,000
(dissolved)	ug/l	4,300	3,040	3,200	---	9,800
Lead (total)	ug/l	<100	<100	<100	<10	<5
(dissolved)	ug/l	<100	<100	<25	---	<5
Manganese (total)	ug/l	2,500	2,200	1,650	1,600	2,900
(dissolved)	ug/l	2,500	2,600	2,100	---	2,600
Mercury (total)	ug/l	<0.2	<0.2	---	---	---
(dissolved)	ug/l	---	---	---	---	---
Selenium (total)	ug/l	<2	<2	---	<2	I
(dissolved)	ug/l	---	---	---	---	I
Silver (total)	ug/l	110	80	---	20	<10
(dissolved)	ug/l	---	---	---	---	<10
Sodium (total)	ug/l	157,000	167,000	148,000	157,000	120,000
(dissolved)	ug/l	148,000	164,000	147,000	---	110,000
Zinc (total)	ug/l	387	491	380	410	530
(dissolved)	ug/l	399	379	353	---	470
OTHER PARAMETERS						
Phenols	mg/l	<0.05	<0.05	0.08	NA	---
Sulfate	mg/l	1,050	915	920	NA	1,480
Chloride	mg/l	26	25	26	NA	---
Total Organic Carbon	mg/l	4 - 5	5	5	NA	---
Total Organic Halogens	ug/l	18.22	<20	<50	NA	---

Data Reporting Qualifiers:

NA Data not available.

--- Samples not analyzed for this parameter.

I Invalid sample or data (value not reported).

M Detected but below the level for accurate quantification.

TABLE 9

HISTORICAL ANALYTICAL DATA FOR MONITORING WELL M-4
LOCKWOOD CORPORATION, GERING, NEBRASKA

	UNITS	11/7/85	2/25/86	4/10/86	12/29/86	9/23/87 (Versar SV) *
FIELD PARAMETERS						
Specific Conductance	umhos/cm	3,600	5,450	4,800	5,350	2,000
pH		6.7	6.9	6.8	6.8	6.5
METALS						
Arsenic (total)	ug/l	<2	3	---	20	<100
(dissolved)	ug/l	---	---	---	---	<10
Barium (total)	ug/l	200	620	---	---	<200
(dissolved)	ug/l	---	---	---	---	<200
Cadmium (total)	ug/l	<5	<5	<5	12	<5.0
(dissolved)	ug/l	<5	<5	<5	---	<5.0
Chromium (total)	ug/l	<50	<50	30	<50	<10
(dissolved)	ug/l	<50	<50	<50	---	<10
Iron (total)	ug/l	2,750	7,500	8,300	4,700	9,200 (13,000)
(dissolved)	ug/l	2,050	3,600	3,000	---	11,000
Lead (total)	ug/l	<100	<100	<25	10	<50
(dissolved)	ug/l	<100	<100	<100	---	<50 (<100)
Manganese (total)	ug/l	3,900	4,800	4,200	3,600	3,000 (4,200)
(dissolved)	ug/l	3,900	5,000	4,500	---	4,000 (3,900)
Mercury (total)	ug/l	<0.2	<0.2	---	---	---
(dissolved)	ug/l	---	---	---	---	---
Selenium (total)	ug/l	<2	5	---	<2	I
(dissolved)	ug/l	---	---	---	---	I
Silver (total)	ug/l	20	<10	---	20	<10
(dissolved)	ug/l	---	---	---	---	<10
Sodium (total)	ug/l	430,000	348,000	320,000	200,000	190,000 (250,000)
(dissolved)	ug/l	330,000	315,000	324,000	---	240,000
Zinc (total)	ug/l	464	659	730	780	780 (1,100)
(dissolved)	ug/l	425	574	622	---	1,000 (990)
OTHER PARAMETERS						
Phenols	mg/l	<0.05	<0.05	0.06	NA	---
Sulfate	mg/l	2,000	1,830	1,630	NA	2,500 (2,720)
Chloride	mg/l	140	115	92	NA	---
Total Organic Carbon	mg/l	6	6	5	NA	---
Total Organic Halogens	ug/l	33 - 41	26	<100	NA	---

Data Reporting Qualifiers:

NA Data not available.

--- Samples not analyzed for this parameter.

I Invalid sample or data (value not reported).

Notes:

* Duplicate analyses were performed for all parameters for samples from monitoring well M-4 during the Versar SV. When the reported value for the duplicate analysis differs from the reported value for the original sample, the duplicate value is given in parentheses.

TABLE 10

HISTORICAL ANALYTICAL DATA FOR MONITORING WELL M-8
LOCKWOOD CORPORATION, GERING, NEBRASKA

	UNITS	11/7/85	2/25/86	4/10/86	12/29/86	9/23/87 (Versar SV)
FIELD PARAMETERS						
Specific Conductance	umhos/cm	1,410	1,100	1,100	1,400	1,025
pH		7.7	7.5	7.5	7.4	7.0
METALS						
Arsenic (total)	ug/l	21	200	---	24	<100
(dissolved)	ug/l	---	---	---	---	20
Barium (total)	ug/l	100	180	---	---	40 M
(dissolved)	ug/l	---	---	---	---	28 M
Cadmium (total)	ug/l	<5	<5	<5	6	<5
(dissolved)	ug/l	<5	<5	<5	---	<5
Chromium (total)	ug/l	<50	<50	<10	<50	<10
(dissolved)	ug/l	<50	<50	<50	---	<10
Iron (total)	ug/l	730	390	160	<100	280
(dissolved)	ug/l	<30	<50	<50	---	110
Lead (total)	ug/l	<100	<100	<100	<10	<5
(dissolved)	ug/l	<100	<100	<25	---	<5
Manganese (total)	ug/l	20	20	20	30	34
(dissolved)	ug/l	<10	<10	<10	---	<15
Mercury (total)	ug/l	50	10	---	---	---
(dissolved)	ug/l	---	---	---	---	---
Selenium (total)	ug/l	<2	4	---	<2	I
(dissolved)	ug/l	---	---	---	---	<5.0
Silver (total)	ug/l	50	10	---	10	<10
(dissolved)	ug/l	---	---	---	---	<10
Sodium (total)	ug/l	230,000	176,000	207,000	110,000	170,000
(dissolved)	ug/l	195,000	174,000	209,000	---	150,000
Zinc (total)	ug/l	49	217	50	20	21
(dissolved)	ug/l	37	26	20	---	<20
OTHER PARAMETERS						
Phenols	mg/l	<0.05	<0.05	<0.05	NA	---
Sulfate	mg/l	120	164	320	NA	270
Chloride	mg/l	19	24	27	NA	---
Total Organic Carbon	mg/l	4	4	4	NA	---
Total Organic Halogens	ug/l	20 - 24	<20	<50	NA	---

Data Reporting Qualifiers:

NA Data not available.

--- Samples not analyzed for this parameter.

I Invalid sample or data (value not reported).

M Detected but below the level for accurate quantification.

The SV analytical results indicate levels of iron and manganese (both total and dissolved) in wells M-1 and M-4 exceed the drinking water standards for these metals. Levels of total iron in all three wells have increased noteably since the last round of sampling conducted by Lockwood in December 1986 (in M-1 levels increased from 6,500 to 12,000 ppb, in M-4 levels increased from 4,700 to 9,200 ppb, and in M-8 levels increased from <100 to 280 ppb). Manganese levels have remained relatively constant. Sulfate levels have also increased in well M-1 (1,480 ppb) and M-4 (2,500 ppb) compared to historical values (920 and 1,630 ppm, respectively).

Analytical results from the upgradient well (M-8) were compared with the results from the downgradient wells (M-1 and M-4) to determine whether the surface impoundment has affected the ground-water quality. This comparison indicates that levels of total and dissolved calcium, iron, manganese, magnesium, potassium, and zinc are much higher in the downgradient wells than in the upgradient well. Sulfate levels in the downgradient wells are five to ten times higher than in the upgradient well.

Specific conductance values obtained for all wells during the SV appear to be lower than previous readings. Values for pH also appear to be slightly lower than the historical values. In general, specific conductance ranged from 1,025 umhos/cm to 2,000 umhos/cm, and pH ranged from 6.5 to 7.0.

Offsite Ground-Water Sampling

Versar collected ground-water samples from three offsite wells (Municipal Well 6, Private Well A, and Private Well B) (Figure 5). These samples were analyzed for VOCs, total and dissolved metals, cyanide, and sulfates. A duplicate sample was collected from Municipal Well 6. Table 11 is a summary of the results for these analyses. Field analytical

TABLE 11

ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES COLLECTED FROM OFFSITE SUPPLY WELLS, LOCKWOOD CORPORATION, GERING, NEBRASKA
SEPTEMBER 1987

	Units	Municipal Well 6	Municipal Well 6 (duplicate)	Private Well A	Private Well B	Referenced Values
FIELD PARAMETERS						
Specific Conductance	umhos/cm	1,300	1,300	1,375	1,425	
pH		7.5	7.5	7.1	6.9	6.5-8.5 (d)
METALS						
Arsenic (total)	ug/l	21	14	14	20	50 (a,b)
(dissolved)	ug/l	20	18	14	19	
Barium (total)	ug/l	75 M	75 M	67 M	50 M	1000 (a,b)
(dissolved)	ug/l	32 M	75 M	51 M	41 M	
Calcium (total)	ug/l	40,000	42,000	72,000	90,000	NA
(dissolved)	ug/l	19,000	41,000	59,000	73,000	
Copper (total)	ug/l	<25	<25	140	<25	1000 (c,d)
(dissolved)	ug/l	<25	<25	110	<25	
Iron (total)	ug/l	120	140	140	170	300(d);1000(c)
(dissolved)	ug/l	<100	<100	<100	<100	
Magnesium (total)	ug/l	18,000	19,000	27,000	39,000	NA
(dissolved)	ug/l	8,200	18,000	23,000	32,000	
Potassium (total)	ug/l	13,000	13,000	6,800	20,000	NA
(dissolved)	ug/l	6,700	13,000	11,000	14,000	
Selenium (total)	ug/l	14 J	12 J	10 J	9.1 J	10 (a,b)
(dissolved)	ug/l	<5.0	<5.0	I	5.0 J	
Silver (total)	ug/l	<10	<10	<10	<10	50 (a,b)
(dissolved)	ug/l	<10	7.8 M	<10	<10	
Sodium (total)	ug/l	230,000	240,000	2,500,000	230,000	NA
(dissolved)	ug/l	110,000	240,000	220,000	200,000	
Zinc (total)	ug/l	28	26	550	24	5000 (c,d)
(dissolved)	ug/l	<20	<20	440	21	
OTHER PARAMETERS						
Cyanide	ug/l	14 J	<10	<10	<10	200 (e,f)
Sulfate	mg/l	250	220	290	420	NA

(continued)

TABLE 11

ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES COLLECTED FROM OFFSITE SUPPLY WELLS, LOCKWOOD CORPORATION, GERING, NEBRASKA
SEPTEMBER 1987
(continued)

(a) Source: National Primary Drinking Water Regulations, Maximum Contaminant Levels, Proposed Rules: Federal Register, 40 CFR 141, November 13, 1985.

(b) Source: Nebraska Department of Environmental Control, 1978, Title 118 - Ground-Water Protection Standards, Primary (Health) Maximum Contaminant Levels.

(c) Source: Nebraska Department of Environmental Control, 1978, Title 118 - Ground-Water Protection Standards, Secondary (Aesthetic) Maximum Contaminant Levels.

(d) Source: National Secondary Drinking Water Regulations, Proposed Rules: Federal Register, 40 CFR 143, April 2, 1986.

(e) Source: National Primary Drinking Water Regulations, Recommended Maximum Contaminant Levels, Proposed Rules: Federal Register, 40 CFR 141, November 13, 1985.

(f) Source: U.S. Public Health Service's Suggested Drinking Water Standard, Proposed Rules for Delisting: Federal Register, 40 CFR 261, November 27, 1985.

Data Reporting Qualifiers:

J Data reported but not valid by approved QC procedures.

M Detected but below the level for accurate quantification.

I Invalid data/sample, value not reported.

data for pH and specific conductance are also included in this table. Only parameters that were detected in the samples are reported in this table. A complete set of analytical data is provided in Appendix E.

Reported values for certain metals and cyanide are compared with state or Federal drinking water standards or guidelines. In addition, analytical results from the samples collected during the SV are compared with analytical data from the samples collected from these wells by NDEC on April 18, 1984 (Table 2).

Analytical data from the SV indicates that levels of metals in the offsite wells do not exceed Federal and state drinking water standards, with the possible exception of selenium. Although the reported values for selenium were flagged because of QC problems, total selenium levels were close to or above the drinking water standards for all wells. Selenium was not previously detected in these wells.

Levels of total zinc in Private well A (550 ppb) have increased substantially since 1984 (27 ppb). Levels of total zinc have also increased slightly in Municipal Well 6 (from 12 to 28 ppb) and Private Well B (from 15 to 24 ppb). Other metals detected in the three wells at levels within the drinking water standards include arsenic and barium (total and dissolved), and iron (total). Copper (total and dissolved) was detected in Private Well A; however, reported values did not exceed the referenced values.

Specific conductance and pH measurements for these wells were slightly higher than the measurements taken from the onsite ground-water monitoring wells. Values for sulfates were much lower than those found in onsite wells M-1 and M-4.

5.0 RELEASE DETERMINATIONS

Potential sources of hazardous constituents at the Lockwood facility include the closed surface impoundment, the waste oil storage area, the raw product storage area, and the scrap metal waste bins. Historical data and visual observations made during the VSI were used to determine the need for sampling in these areas. During the initial phases of the RFA the solvent recycling system, the effluent tank, and the hazardous waste storage area were determined to need no further investigation because of good management practices and no evidence or history of release. Consequently, in the Interim RFA Report, no further action was recommended in these areas. During the SV facility tour, however, evidence of a release was noted in the hazardous waste storage area that had not been observed during the VSI. A soil sample was subsequently taken from this location to determine whether a release had occurred. The following sections discuss SWMUs or other areas of concern that showed evidence of release and those that showed no evidence of release. The major pathways of contaminant transport at the Lockwood facility include surface runoff and ground-water transport.

5.1 Units Showing Evidence of Release

Closed Surface Impoundment

A release is known to have occurred in April 1984 from the surface impoundment at the Lockwood facility. A breach in the lining of cell II caused the release of approximately 5,000 gallons of spent pickle liquor to the subsurface. In October 1985, a series of ten monitoring wells were installed around the surface impoundment. These wells are screened in the overlying alluvial soils above the Brule formation (personal communication, R. Tobin, April 1, 1987). Historical analytical data from these wells indicated higher concentrations of sulfates and some metals near cell II. A contaminant plume has been described by HWS Technologies Inc. for Lockwood Corporation based on specific conductance measurements.

A comparison of analytical data from upgradient well M-8 to analytical data from downgradient wells M-1 and M-4, indicates that a release to ground-water from the surface impoundment has occurred. Both historical data and data generated during the SV indicate that levels of iron, manganese, zinc, and sulfates are significantly higher in the downgradient wells. Lead (34,088 mg/kg) and zinc were detected in sludge samples collected from the surface impoundment by NDEC in April 1984 (NDEC, 1984).

Results of samples collected in 1984 from the three offsite ground-water supply wells suggest that, at that time, the lower and main drinking water aquifer in the area (the Brule formation) was not affected by the release from the surface impoundment. Analytical results for samples collected from these wells during the SV indicated that, with the possible exception of selenium, metals levels do not currently exceed the Federal and state drinking water standards. However, the increases in zinc levels and the possible presence of selenium in the ground-water from these downgradient wells indicates that ground-water quality in the Brule formation may be affected by the release from the surface impoundments. Zinc is found at high levels in the onsite monitoring wells immediately downgradient of the facility, and was detected by NDEC in sludge samples collected from the surface impoundment in 1984.

Waste Oil Storage Area

During the VSI in April 1987, there was visual evidence that some drums of oil had leaked and spilled onto the soil in the waste oil storage area (see photographs 1 through 5, Appendix A). The releases appeared to be limited to the immediate area of the storage area. Between the VSI and the SV conducted in September 1987, Lockwood had removed most of the drums which had been stored in this area. Empty 55-gallon barrels are now stored along the western fence of this area. During the SV, six drums labeled "Used paint from dip tank" were noted in the waste oil storage area. These tanks were subsequently labeled

"Liquid paint" and transported to the hazardous waste storage area for storage. Another drum of waste oil was not sealed and an oil residue was present on the ground surrounding the drum (photograph 1, Appendix A).

No organics were detected in any of the soil samples collected in the waste oil storage area; however, as previously noted, the detection levels for the organic compounds were high. This is of some concern due to the obvious oily nature of the samples and the distinct organic odors noted during the SV.

Evidence of poor waste management practices was noted during both the VSI and the SV. In addition, visual evidence indicates that releases have occurred in the waste oil storage area. Although organic data are not available to support a release determination, slightly elevated levels of metals were detected in some samples. The extent of these releases is unknown. Releases from this area could potentially enter the ground water through percolation, or be transported overland by surface runoff.

Raw Product Storage Area

During the VSI, visual evidence of releases from the raw product storage area was noted. The soil near the drainage opening of the concrete berm around the line stripper tank was discolored. Another area showed discoloration of yellow and green, and the surface soil was caked (photograph 7, Appendix A). Evidence that some type of oil had leaked or spilled from drums onto the soil was also noted (photograph 9, Appendix A). Although the detection limits were high, organic data supports a release determination. In addition, metal concentrations were slightly elevated.

Visual observations and analytical data collected during this RFA suggest that releases have occurred in the raw product storage area. The

extent of these releases is not known. Contaminants from this area could potentially enter the soil and infiltrate to the ground-water table. Analysis of the soil sample from the drainage area indicates that metals may be transported from the raw product storage area by surface water runoff.

Scrap Metal Waste Bin Area

During the SV, oil residues and iron shavings were noted on the ground surface around two bins used for the disposal of nonhazardous scrap metal (see photographs 11 through 13, Appendix A). Visual evidence of rust-colored and oil stained soil around the bins used for scrap metal disposal, and the elevated concentrations of some metals in this area, indicate that a release has probably occurred. The extent of this release is not known. Contaminants from this area could potentially enter the ground-water through percolation, or be transported overland by surface runoff.

Hazardous Waste Storage Area

During the VSI, the hazardous waste storage area appeared to be well maintained with no evidence of release. During the SV, however, a white circular stain was noted on the soil surface near the center of the fenced-in area (see photographs 16 and 17, Appendix A). The facility representative did not know of any spills in this area.

Visual and analytical evidence suggest that there may have been a release in the hazardous waste storage area. The extent of this release is unknown; however, this area appears to be well managed. The only visual evidence of a release was a small patch of whitish powder in the center of the fenced-in area where the sample was collected. Releases from this area could potentially be transported by surface runoff or percolate to the ground-water table. The base of the area consists of 1 to 2 feet of compacted fine sands, rock fragments, and gravels, over a

natural clay base (personal communications, R. Dugan, September 12, 1988). The compaction of the upper layer reduces the permeability of the sand, rock, and gravel; and the basal clay may reduce the potential for contaminants to infiltrate into the lower soils.

5.2 Units Showing No Evidence of Release

Effluent Tank

During the VSI, the effluent tank was screened from further action because of good management practices, and no evidence of deliberate and systematic release. Consequently, this tank was not investigated further during the SV.

Solvent Recycling System

No release to the environment from the solvent recovery system is known to have occurred, and there was no evidence during the VSI of a release from this unit. There is also no environmental migration pathway from this unit because of its construction.. The only potential for exposure would be for workers in the area if a spill should occur. This unit was not investigated during the SV.

6.0 CONCLUSIONS AND FINAL RFA RECOMMENDATIONS

The final task of the RFA is to determine release potential throughout the site and provide recommendations for future site activities. Future activities should address potential or known releases of hazardous wastes or hazardous constituents (EPA, 1986).

During the SV, or final phase of the RFA, Versar investigated five SWMUs and two areas of concern. Soil samples were collected from four of these units, and ground-water samples were collected from onsite and offsite wells. Samples were analyzed through the U.S. EPA Contract Laboratory Program, and the analytical data was validated by the U.S. EPA Region VII Laboratory. These data indicate that at some locations, releases of hazardous constituents to soil and ground water have occurred. Further investigation is recommended for some units, while other units require no further action. Overall, releases to soil appear to be the result of poor waste management practices. A release to ground water from the site has previously been documented and was verified during this investigation.

6.1 Units Requiring Further Corrective Action

Closed Surface Impoundment

A release from the surface impoundment has been documented, and the Lockwood facility has initiated an onsite ground-water monitoring program. In September 1986, NDEC conducted a Comprehensive Monitoring Evaluation (CME) to evaluate Lockwood's ground-water monitoring program (NDEC, 1986b).

Analytical data from this SV indicates that levels of some contaminants in the onsite ground-water monitoring wells have increased over time. This suggests that the source of the contaminants may not be adequately confined or removed. Analysis of offsite wells indicates that

although metals levels are below the drinking water standards, concentrations of zinc have risen since 1984 when the original release occurred.

The verification of ground-water contamination near the surface impoundments indicates a need for the initiation of a RCRA facility investigation (RFI) at the Lockwood facility. Further studies should define the contaminant plume and determine its rate and extent of contaminant movement. Offsite drinking water supplies should be periodically sampled.

Waste Oil Storage Area

Visual evidence and analytical data suggest that releases have occurred in the waste oil storage area. The extent of these releases should be investigated to determine whether metal contamination exists below the shallow soil horizon.

It is also suggested that Lockwood improve the waste management practices in this area to ensure that appropriate drums of sound integrity are properly labeled, and stored here.

Raw Product Storage Area

Releases from the raw product storage area have been documented by visual observation and analytical results. In addition, the movement of contaminants by overland flow may be indicated by sample results from the drainage area near this unit. Further studies are needed to define the extent of the soil contamination, with particular attention to this surface runoff migration pathway.

Scrap Metal Waste Bin Area

Visual evidence of releases to the soil around the scrap metal waste bins has been supported by the analytical data. Additional studies to

define the extent and nature of these releases is recommended. This unit is closest to the offsite private wells, and the potential contribution from this area on ground-water quality should be considered.

Hazardous Waste Storage Area

A release to the soil in the hazardous waste storage area may be indicated by elevated zinc levels. The nature of the base of this unit should be evaluated to determine the potential for vertical migration of contaminants. Contaminant movement by overland flow should be considered.

6.2 Units Requiring No Further Action

Effluent Tank

No visual evidence or historical data exists to suggest that releases have occurred from the effluent tank. The construction of this tank and good management practices support the recommendation that this unit be screened from further corrective action. Lockwood should continue to check the tanks regularly for leaks.

Solvent Recycling System

The lack of historical evidence of a release and the absence of an environmental migration pathway support the recommendation that no further action be considered for the solvent recycling system.

REFERENCES

CDM Federal Programs Corporation (FPC). 1987a. Quality Assurance Project Plan (QAPP) for Performing Sampling Visits of RCRA Facility Assessments for Sites in Region VII. Submitted by Versar, Inc., to CDM FPC under EPA TES Contract 68-01-7331, July 28, 1987.

CDM Federal Programs Corporation (FPC). 1987b. Interim RCRA Facility Assessment, Lockwood Corporation, Gering, Nebraska. Submitted by Versar, Inc., to U.S. EPA Region VII under EPA TES Contract 68-01-7331, May 29, 1987.

CDM Federal Programs Corporation (FPC). 1987c. Sampling Visit Work Plan, Lockwood Corporation, Gering, Nebraska. Submitted by Versar, Inc., to U.S. EPA Region VII under EPA TES Contract No. 68-01-7331, September 10. 1987.

HWS Technologies, Inc. (HWS). 1984. Hydrogeologic Investigation and Remedial Action Plan, Spent Acid Evaporation Pond for Lockwood Corporation, Gering, Nebraska. Hoskins-Western-Sonderegger, Inc., Lincoln, Nebraska. Report received at NDEC on November 9, 1984.

HWS Technologies, Inc. (HWS). 1986. Letter from Roy Elliott to Roy Dugan, Lockwood Corporation, regarding status of ground-water monitoring and closure of spent acid evaporation pond. August 29, 1986. Received by NDEC on October 1, 1986.

HWS Technologies, Inc. (HWS). 1987. Letter from Roy Elliott to Roy Dugan, Lockwood Corporation, regarding ground-water monitoring of spent acid spill. March 2, 1987. Received by NDEC on March 3, 1987.

McLaughlin, T.G. 1948. Ground Water in the Julesberg Area, Colorado. Circular No. 1, Colorado Water Conservation Board, as quoted in Comprehensive Groundwater Monitoring Evaluation (CME) for Lockwood Corporation NED044101442, by R.J. Tobin, Nebraska Department of Environmental Control. September 30, 1986.

Nebraska Department of Environmental Control (NDEC). 1984. Investigation Report for Lockwood Corporation, Gering, Nebraska. Water and Waste Management Division, Surveillance and Analysis Section. Site Investigation on April 18, 1984, by Bill Imig and Neil Wheeler. Report on June 20, 1984.

REFERENCES
(Continued)

Nebraska Department of Environmental Control (NDEC). 1986a. RCRA Compliance Inspection of Lockwood Corporation, Gering, Nebraska, by Russ Nyffeler, Hazardous Waste Management Section. June 2, 1986.

Nebraska Department of Environmental Control (NDEC). 1986b. Comprehensive Groundwater Monitoring Evaluation (CME) for Lockwood Corporation NED044101442, by R.J. Tobin. September 30, 1986.

Science Applications International Corporation (SAIC). 1986. Development of Pretreatment Permit Limitation for Lockwood Corporation, Gering, Nebraska. March 1986.

U.S. Environmental Protection Agency (EPA). 1983. Hazardous Waste Land Treatment. Office of Solid Waste and Emergency Response, Washington, D.C., SW-874, April 1983.

U.S. Environmental Protection Agency (EPA). 1986. RCRA Facility Assessment Guidance. Office of Solid Waste, Washington, D.C., October 1986.

United States Geological Survey (USGS). 1976. Scottsbluff South Quadrangle Topographic Map, Scotts Bluff County, Nebraska. 7.5 minute series. Reston, Virginia. Photorevised 1976.

United States Geological Survey (USGS). 1985. National Water Summary 1984, Hydrologic Events. Selected Water-Quality Trends, and Ground-Water Resources. Water-Supply Paper 2275.

REFERENCES FOR PERSONAL COMMUNICATION

Dugan, Roy. Quality Assurance Manager, Lockwood Corporation, Gering, Nebraska. Visual Site Inspection on April 3, 1987.

Dugan, Roy. Quality Assurance Manager, Lockwood Corporation, Gering, Nebraska. Telephone conversation with Alicia Fleitas, Versar, Inc., September 12, 1988.

Knowles, Bob. Supervisor of Galvanizing Operation, Lockwood Corporation, Gering, Nebraska. Sampling Visit from September 21 to September 23, 1987.

Tobin, Robert. Hazardous Waste Section, Land Quality Division, NDEC, Lincoln, Nebraska. State Office Building on April 1-2, 1987.

APPENDIX A

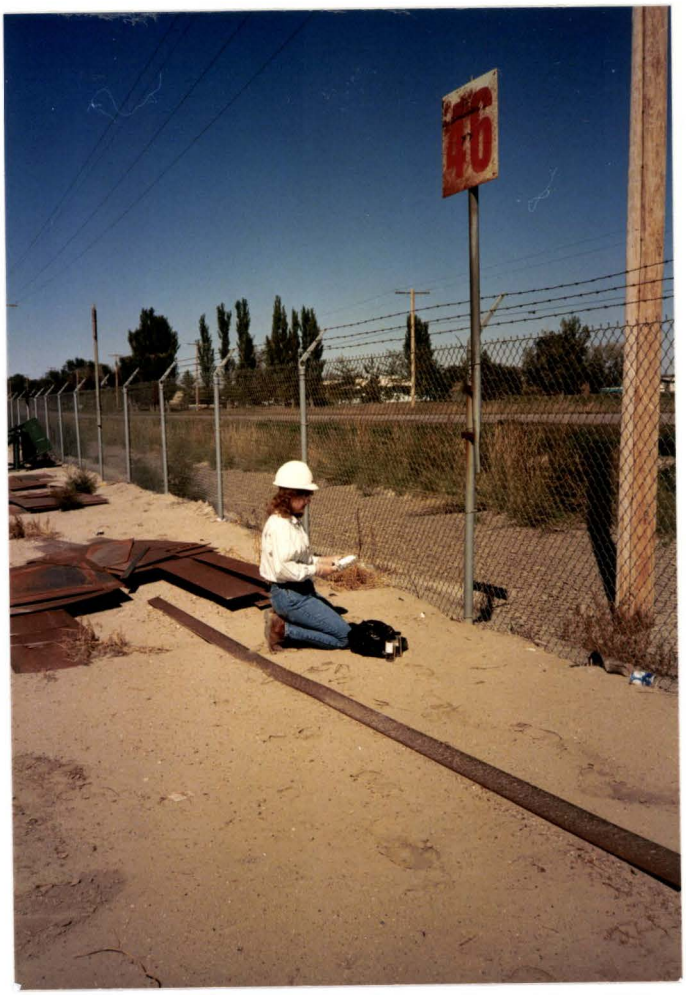
PHOTOGRAPHS FROM THE RFA SAMPLING VISIT AT
LOCKWOOD CORPORATION
GERING, NEBRASKA
September 1987

Photograph 1. Waste Oil Storage Area, Location WO1, Sample Number 006 (soil), September 21, 1987 (facing southwest)

Photograph 2. Waste Oil Storage Area, Location WO2, Sample Number 007 (soil), September 21, 1987

Photograph 3. Waste Oil Storage Area, Location WO3, Sample Number 008 (soil), September 21, 1987 (between drums on westernmost side of area)

Photograph 4. Waste Oil Storage Area, Location WO4, Sample Number 009 (soil), September 21, 1987



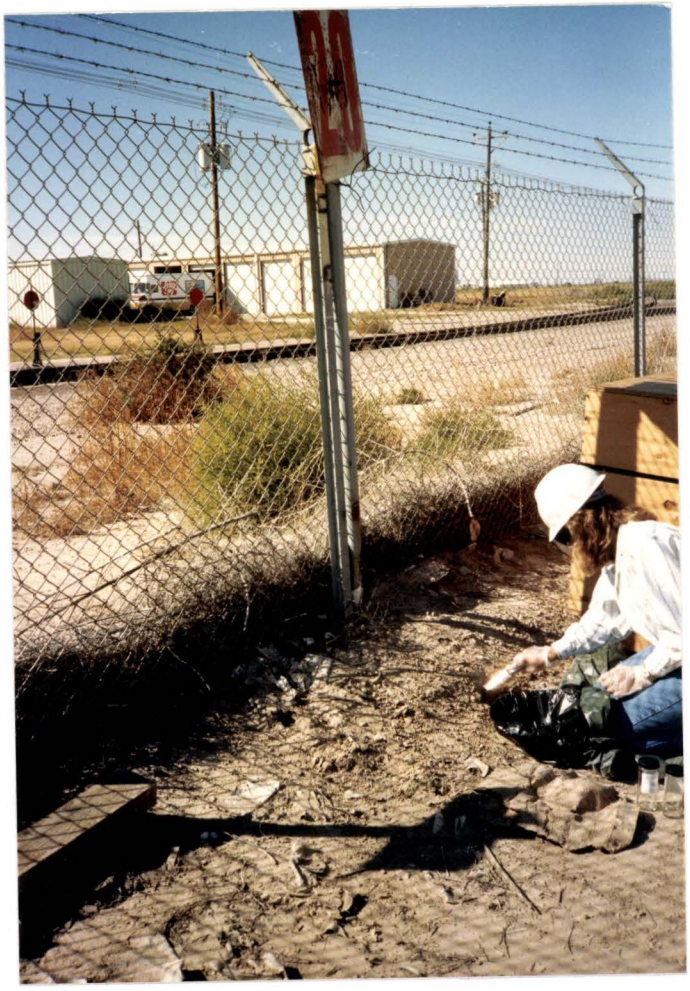
Photograph 5. Waste Oil Storage Area, Location WOBackground, Sample Number 010 (soil), September 21, 1987 (along east fence, facing northeast)

Photograph 6. Waste Oil Storage Area, Location WOBackground, Sample Number 010 (soil), September 21, 1987

Photograph 7. Raw Product Storage Area, Location RP1, Sample Number 001 (soil), September 21, 1987 (along east fence, facing northeast)

Photograph 8. Raw Product Storage Area, Location RP1, Sample Number 001 (soil), September 21, 1987

Photograph 9. Raw Product Storage Area, Location RP2, Sample Number 002 (soil), September 21, 1987



Photograph 10. Raw Product Storage Area, Location RPBackground, Sample Number 009 (soil), September 21, 1987 (near fence, facing north-northwest)

Photograph 11. Scrap Metal Waste Bin, Location SMWB2, Sample Number 012 (soil), September 21, 1987 (on east or outer side of fence near guard house)

Photograph 12. Scarp Metal Waste Bin, Location SMWB2, Sample Number 009 (soil), September 21, 1987 (facing east)

Photograph 13. Scrap Metal Waste Bin, Location SMWB1, Sample Number 012 (soil), September 21, 1987 (on west side of fence near guard house)

Photograph 14. Drainage Area, Location DA1, Sample Number 003 (soil), September 21, 1987 (center of lowlying area southwest of the Raw Product Storage Area, facing north)

Photograph 15. Drainage Area, Location DA1, Sample Number 003 (soil), September 21, 1987 (facing northeast)

Photograph 16. Hazardous Waste Storage Area, Location HWSA1, Sample Number 004 (soil), September 21, 1987 (facing east)

Photograph 17. Hazardous Waste Storage Area, Location HWSA1, Sample Number 004 (soil), September 21, 1987

Photograph 18. Greckel Residence, Private Well, Sample Number 018 (ground water), September 22, 1987 (facing west towards Lockwood from front of house)

Photograph 19. Ted B. Miller Company, Private Well, Sample Number 017 (ground water) September 22, 1987, (facing south towards Lockwood from front of building)

Photograph 20. Municipal Well No. 6, Sample Number 016 (ground water) September 22, 1987 (collection of sample inside the pump house)

Photograph 21. Municipal Well No. 6, Sample Number 016 (ground water), September 22, 1987, (view of pump house, facing east towards Lockwood)

Photograph 22. Municipal Well M-8, Sample Number 015, (ground water) September 22, 1987 (facing northeast)

Photograph 23. Monitoring Well M-1, Sample Number 013 (ground water)
September 22, 1987, (facing northeast)

Photograph 24. Municipal Well M-1, Sample Number 013 (ground water)
September 22, 1987

Photograph 25. Borrow Pit (South side of facility entrance drive facing north) September 22, 1987

Photograph 26. Borrow Pit (north side of facility entrance drive, facing north) September 22, 1987

Photograph 27. Monitoring Well M-4, Sample Number 014 (ground water), September 22, 1987 (facing southeast)

Photograph 28. Aerial View of Lockwood Corporation, Gering, Nebraska, September 22, 1987

APPENDIX B

FIELD DOCUMENTATION FOR THE RFA SAMPLING VISIT AT
LOCKWOOD CORPORATION
GERING, NEBRASKA
September 1987

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 001 QCC: _ MEDIA: SOIL PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: RAW PRODUCT STORAGE AREA - 1 DATE TIME FROM REF PT.
LOCATION: GERING NE BEG: 09/21/87 14:45 ~~EAST~~ WEST 6.5'
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/21/87 14:50 ~~NORTH~~ SOUTH 3.7'
STORET/SAROAD NO: _____ DOWN: 2-4" below grade

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	WHITE	ICED		METALS

COMMENTS:

RP1 - Reference Points for East/West direction is edge of cement pedestal holding line stripper tank (solvent) and for North/South direction is southeastern support post of locked ~~storage~~ fence around storage area of used thinners to be recycled.

Location is also 0.9' West and 0.6' South of curb of cement pad around line stripper tank.

ICHEM Bottle Lot # F6225132

No Facility Split

Sample collected in area where green and yellow stains from paint are evident

Soil and curb have splotches of green + yellow color.

2 tanks of line stripper in this area, both are empty.

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 002 QCC: _ MEDIA: SOIL PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: RAW PRODUCT STORAGE AREA - II DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/21/87 __:__ ~~EAST~~ WEST: 20.1'
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/21/87 15:00 ~~NORTH~~ SOUTH: 5.8'
STORET/SAROAD NO: _____ DOWN: ~~___~~ 2-4" below grade

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	WHITE	ICED		METALS

COMMENTS:

RP2 - Reference Points for East/West direction is edge of southernmost cement pedestal holding line stripper tank, and for North/South direction is southwestern support post of locked fence around storage area of used thinners to be recycled.

ICHEM Bottle Lot # F6225132

No Facility Split.

Sample collected in oil-stained area immediately below product oil stand with drums lying on their sides.

One nearby drum was marked "URSA Texaco", "United Lubricants, 10W Motor Oil".

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 003 QCC: _ MEDIA: SOIL FL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: DRAINAGE AREA - I DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/21/87 __:__ EAST: 98.4'
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/21/87 16:50 ~~NORTH~~ SOUTH: 43.3'
STORET/SAROAD NO: _____ DOWN: ~~____~~ 2-4" below grade

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	WHITE	ICED		METALS

COMMENTS:

DA1 - Reference Points for East/West direction is fence along western edge of property, about midway between signs #21+22, and for North/South direction is (southern) Edge of cemented area where raw products (like paint) are stored.

1 Chem Bottle Lot # F6225132

No Facility Split.

Sample collected in low lying area southwest of Raw Product Storage areas samples (RP1, RP2).

Area South of warehouse.

Top of soil is dessicated and cracked.

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 004 QCC: _ MEDIA: SOIL PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

~~HAZARDOUS WASTE STORAGE AREA I~~

SAMPLE DES: ~~DRAINAGE AREA II~~ DATE TIME FROM REF PT,
LOCATION: GERING NE BEG: 09/21/87 12:20 EAST: 20.1'
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/21/87 12:25 ~~NORTH~~ South: 14.4'
STORET/SAROAD NO: _____ DOWN: ____
1-3" below grade

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	WHITE	ICED		METALS

COMMENTS:

HWSA1 - formerly DA2 - Reference Points for East/West direction is gate post on western fenced side of Hazardous Waste Storage Area, and for North/South Direction is fence along northern side of Hazardous Waste Storage Area.

1 Chem Bottle Lot # F6225132

No Facility Split

Sample collected in area where white-colored, circular stain evident at soil surface during SV. Stain looked somewhat like soda ash but facility escort did not know of any spills there.

Base of Hazardous Waste Storage Area is 6" of graded gravel (fine to coarser grade with depth).

Sample collected about 1-3" below grade due to difficulty in extracting sample (many rocks present).

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 005 QCC: _ MEDIA: SOIL PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: BACKGROUND SOIL - RP DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/21/87 __:__ EAST: 2.2'
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/21/87 15:43 NORTH: 0.0
STORET/SAROAD NO: _____ DOWN: ___
2-4" below grade

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	WHITE	ICED		METALS

COMMENTS:

RP Background - Reference Point is sign #20 on fence along western property boundary

1 Chem Bottle Lot # F6225132

No facility Split

Sample location is area near fence where no previous releases are evident.

Soil has sandy silt texture.

Location is near plywood crates; about 25' west of paved ~~road~~ path through small parts storage area.

1-2" soil scraped away, sample collected 2-4" depth.

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 006 QCC: _ MEDIA: SOIL PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: WASTE OIL STORAGE AREA - I DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/21/87 __:__ ~~EAST~~ West: 20.8'
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/21/87 13:20 NORTH: 20.5'
STORET/SAROAD NO: _____ DOWN: ___
2 ~~ft~~ below ~~surface~~ grade

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	WHITE	ICED		METALS

COMMENTS:

WO1 - Reference pt. is sign #44 on fence along eastern property boundary
ICHEM Bottle Lot # F6225152

No facility split

Location west of open drum filled with waste oil

Oil-stained soil over 3'x8' area.

1-2" soil scraped away, sample collected 2-4" depth.
Odor emitted when soil scraped.
At about 6" depth, soil is dry.

General Location = ¼ mi north of Southeastern corner of Lockwood Property.

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 007 QCC: _ MEDIA: SOIL PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: WASTE OIL STORAGE AREA - II DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/21/87 __:__ ~~EAST~~ WEST: 28.4'
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/21/87 13:30 NORTH: 11.5'
STORET/SAROAD NO: _____ DOWN: ___
2-4" below grade

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	WHITE	ICED		METALS

COMMENTS:

WO2 - Reference pt. is sign #3 on fence along eastern propety boundary

ICHEM Bottle Lot # F6225152

No Facility split

Location among salvage parts in area with numerous oil-~~contam~~ stained patches at soil surface.

1-2" soil scraped away, sample collected 2-4" depth.

Soil moisture increased at 2" depth.

General Location = ab. 1/4 mi. north of southeastern corner of Lockwood property

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 008 QCC: _ MEDIA: SOIL PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: -- -- --
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: --- -- --

---

SAMPLE DES: WASTE OIL STORAGE AREA - III DATE TIME FROM REF PT,
LOCATION: GERING NE BEG: 09/22/87 __:__ EAST: 44.6'
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/21/87 13:40 NORTH: 56.5'
STORET/SAROAD NO: _____ DOWN: 2-4" below grade

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	WHITE	ICED		METALS

COMMENTS:

W03 - Reference point is gate post in fence (western side) around the waste oil storage area.

In midst of area of empty drums (though 2 drums do not sound hollow).

1 Chem Bottle Lot # F6225152

No Facility Split

Dark brown stain on soil between empty drums. Organic odor emitted when soil scraped, deflection on TIP = 1ppm

Sandy soil at surface becoming more silty with depth.

1-2" soil scraped away, sample collected 2-4"

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 009 QCC: _ MEDIA: SOIL PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: WASTE OIL STORAGE AREA - IV DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/21/87 __:__ ~~WEST~~: 10-2'
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/21/87 14:05 ~~NORTH~~: 16-3'
STORET/SAROAD NO: _____ DOWN: 2-4" below grade

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	WHITE	ICED		METALS

COMMENTS:

W04 - Reference Pt. is sign #43 on fence along eastern property boundary

1 Chem Bottle Lot # F6225152

No Facility split

Location about 2' south of line of 24 drums in Waste (Used) oil Storage Area, near the easternmost drum

Location in an oil-stained area about 1 sq. foot, but like numerous other oil-stained areas.

Sample location roughly between W01 and W02.

1-2" soil scraped away, sample collected 2-4" depth.

No odor when scraping soil.

Soil is drier here than in other locations.

General Location = about 1/4 mi. north of SE corner of property.

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: ~~009~~ 011 QCC: D MEDIA: SOIL PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: -- -- --
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: --- -- --

SAMPLE DES: ~~WASTE OIL STORAGE AREA - IV~~ SCRAP METAL WASTE BIN - I
LOCATION: GERING NE
SMO NO: ------ SHIP NO: 00 LAB: ---
STORET/SAROAD NO: ------

DATE TIME FROM REF PT
BEG: 09/21/87 --:-- ~~WEST:~~ 11.3'
END: 09/21/87 16:35 NORTH: 8.4'
DOWN: 1-3" below grade

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	WHITE	ICED		METALS

COMMENTS:
SMWB1-Dup (formerly W04 Dup)
Reference Pt. is southern edge of cement pad around diesel fuel pump.
Duplicate was not collected in Waste Oil Storage Area.
Duplicate was collected with sample 011 (SMWB1) because SMWB1 was an area of observed releases noted during the SV; A field decision was made that it is more important to verify possible releases from a newly identified area of concern.
I CHEM Bottle Lot # F6225132.
No Facility Split.

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 010 QCC: _ MEDIA: SOIL PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: __ __ __

SAMPLE DES: BACKGROUND SOIL - WO DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/21/87 __:__ ~~EAST~~ WEST: 1.2'
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/21/87 14:15 NORTH: 0.0'
STORET/SAROAD NO: _____ DOWN: 2-4" below grade

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	WHITE	ICED		METALS

COMMENTS:

WO Background - Refn. Pt. is sign #46 on fence along eastern property boundary

1 Chem Bottle Lot # F 6225152

No Facility Split

Location in area where no previous releases are evident.

Sample collected near fence in sandy textured soil.

Soil dry at surface, with increasing moisture ~~at~~ with depth

1-2" soil scraped away, sample collected 2-4" depth

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 011 QCC: _ MEDIA: SOIL PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: -- -- --
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: --- -- --

SAMPLE DES: ~~BORROW PIT I~~ ~~SCRAP METAL WASTE BIN~~ I
LOCATION: GERING NE
SMO NO: _____ SHIP NO: 00 LAB: ---
STORET/SAROAD NO: _____

	DATE	TIME	FROM REF PT
BEG:	09/21/87	--:--	WEST: 11.3'
END:	09/21/87	16:35	~~EAST:~~ ~~NORTH:~~ NORTH: 8.4'
			DOWN: 1-3" below grade

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	WHITE	ICED		METALS

COMMENTS:
SMWB1 - Former BP1 (No releases observed at Borrow Pit Location)
Reference Point is cement pad holding ~~the~~ pump for diesel fuel.
Measurements taken from southern edge of pad.
+ DUPLICATE
I Chem Bottle Lot # F6225132
No Facility Split.
Sample Collected in area of observed releases near a Scrap Metal Waste Bin for scrap metal from fabrication process.
Area located east of machine shop and west of diesel & gasoline pumps.
Soil appeared rust-colored and oil-stained.
Sampling location about 4' North of edge of Scrap metal waste bin.
Subsoil very hard and rocky.
1" soil scraped away, sample collected 1-3" depth.

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 012 QCC: _ MEDIA: SOIL PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 FT: LONGITUDE: ___ __ __

SAMPLE DES: ~~BORROW PIT~~ SCRAP METAL WASTE BIN - II DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/21/87 __:__ EAST: 23.3'
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/21/87 16:15 ~~NORTH~~ SOUTH: 15.6'
STORET/SAROAD NO: _____ DOWN: near grade

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGF	NAME
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	WHITE	ICED		METALS

COMMENTS:

SMWB 2 - Formerly BP2 (No release observed at borrowpit location)
Refn. points ~~are~~ for east/west direction is fence-line at the guard house (western side of employee parking lot), and for north/south direction is the fence along the northern side of employee parking lot (south of product testing area).

1 Chem Bottle Lot # F6225132
No Facility Split.
Sample collected in area of observed release - soil appear rust-colored and oily.
Facility scraping away upper portion of soil with a small bulldozer. Waste soil placed in drums to be taken to municipal landfill.
Soil sample collected near surface, 0-2" depth.
Area of Waste Bin for scrap metal chips from machine shop.

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 013 QCC: _ MEDIA: WATER PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: -- -- --
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: --- -- --

---

SAMPLE DES: MONITORING WELL M-1 DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/22/87 15:30 EAST: 31¼"
SMO NO: _____ SHIP NO: 00 LAB: --- END: 09/22/87 15:45 NORTH: 00
STORET/SAROAD NO: _____ DOWN: ---

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	WHITE	HNO3		METALS
CUBI	GREY	FILTER, HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
CUBI	TAN	NONE	WT12	SULFATE AS SO4

COMMENTS:

M-1 Purged from 1545 to 1625

Purged 36 gallons

DTW = 7.43' (from PVC top of casing)
TWD = 24.67' (" " " " ")

11.25 gallons of standing water

Protective Casing Stickup = 1'9⅞"

Distance tween PVC & Protective Casings = 3¼"

Refn. Pt. = Fence around surface impoundment

VOA Vials = I-CHEM Bottles Lot # B6226022

Facility split Sulfate sample.

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 014 QCC: _ MEDIA: WATER PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: MONITORING WELL M-4 DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/23/87 8:45 EAST: 41'2"
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/23/87 9:13 NORTH: 0.0
STORET/SAROAD NO: _____ DOWN: ===

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	WHITE	HNO3		METALS
CUBI	GREY	FILTER, HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
CUBI	TAN	NONE	WT12	SULFATE AS SO4

COMMENTS:

M-4 Purged from 740 to 840

Purged 39 gallons

DTW = 7.94' (from PVC top of casing)

TWD = 27.30' (" " " " ")

13 gallons of standing water

Protective Casing stickup = 2' 1½"

Difference 'tween PVC + Protective Casings = 7⅛" to 7½"; 7⅜" at measuring location.

Refn. Pt. = Fence around surface impoundment.

VOA vials = I-CHEM Bottle Lot # B6226022

Facility split Sulfate (cubi container) and Total Metals (amber glass liter).

Facility also collected sample bottles for TOC, TOX, phenols + nitrates in amber glass liter I-CHEM Bottles (Lot # of amber liters = #08258704)

SAMPLE COLLECTED BY : R. Dickinson

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 014 QCC: D MEDIA: WATER PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: MONITORING WELL M-4 DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/23/87 8:45 EAST: 41'2"
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/23/87 9:13 NORTH: ____
STORET/SAROAD NO: _____ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI.	WHITE	HNO3		METALS
CUBI	GREY	FILTER,HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
CUBI	TAN	NONE	WT12	SULFATE AS SO4

COMMENTS:

M-4 Duplicate of sample 014 at Well M-4.

Bottles for duplicate parameters filled immediately after corresponding parameters.

VOA vials = I CHEM Bottle Lot # B6226022

No Facility Split.

SAMPLE COLLECTED BY : R. Dickinson

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 015 QCC: _ MEDIA: WATER PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: MONITORING WELL M-8 DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/22/87 13:50 EAST: ____
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/22/87 14:00 NORTH: ____
STORET/SAROAD NO: _____ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	WHITE	HNO3		METALS
CUBI	GREY	FILTER, HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
CUBI	TAN	NONE	WT12	SULFATE AS SO4

COMMENTS:

M-8 Purge from 1245 to 1345
Removed 44 gallons of purge water.

DTW = 7.11' (from PVC top of casing)
TWD = 29.48' (" " " " ")
14.6 gallons of standing water

Protective Casing Stick up = 1' 11¼"
Distance 'tween PVC & Prot. Casing = 1¾"

VOA vials = I-CHEM Bottle Lot # B6226022

Facility Split Sulfate sample.

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 016 QCC: _ MEDIA: WATER PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: MUNICIPAL WELL 6 DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/22/87 8:40 EAST: ____
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/22/87 8:50 NORTH: ____
STORET/SAROAD NO: _____ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	WHITE	HNO3		METALS
CUBI	GREY	FILTER, HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
CUBI	TAN	NONE	WT12	SULFATE AS SO4

COMMENTS:
Location: NW¼ SE¼ Section 1 T21N R55W
Sample collected from spigot on delivery pipe of Gering Municipal Well No. 6; DOH Well No. 77-1
Pump House and well located immediately west of Lockwood Property (opposite warehouse)
Well depth = 338 ~~feet~~
Well pump rate = 350 gal/min
Well completed Nov 19, 1976
Well No. 6 shut down during winter; in spring must purge well 1-2 wks because water smells like rotten eggs (test for ~~cyanide~~ sulfides was negative)
VOA Vials - I Chem Bottles Lot # B6226022
No Facility Split.

Parameters: VOAs, T. Metals, Dissolved Metals, Cyanide, Sulfate
NE DWR Registration No. G56992

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 016 QCC: D MEDIA: WATER PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: MUNICIPAL WELL 6 DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/22/87 8:40 EAST: ____
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/22/87 8:50 NORTH: ____
STORET/SAROAD NO: _____ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	WHITE	HNO3		METALS
CUBI	GREY	FILTER, HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
CUBI	TAN	NONE	WT12	SULFATE AS SO4

COMMENTS:

Duplicate of Sample 016 collected at Muni. Well No 6.

VOA Vials = I-Chem Bottles Lot #B6226022

No Facility Split.

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 017 QCC: _ MEDIA: WATER PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: PRIVATE WELL-MILLER DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/22/87 1:46 EAST: ____
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/22/87 1:49 NORTH: ____
STORET/SAROAD NO: _____ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	WHITE	HNO3		METALS
CUBI	GREY	FILTER,HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
CUBI	TAN	NONE	WT12	SULFATE AS SO4

COMMENTS:

Sample collected from conference room faucet (cold water faucet only), at Miller Implement Co.

VOA Vials, I-Chem Bottle Lot # B6226022

No Facility Split.

Purged lines for 2 minutes.

Well may date to 1950's; is a shallow well, about 28' deep.

SAMPLE COLLECTED BY : A. Eleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 018 QCC: _ MEDIA: WATER PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: -- -- --
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: --- -- --

---

SAMPLE DES: PRIVATE WELL-GRECKLE DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/22/87 2:35 EAST: 6'
SMO NO: _____ SHIP NO: 00 LAB: --- END: 09/22/87 7:28 NORTH: ----
STORET/SAROAD NO: _____ DOWN: ----

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	WHITE	HNO3		METALS
CUBI	GREY	FILTER, HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
CUBI	TAN	NONE	WT12	SULFATE AS SO4

COMMENTS: Reference Point is eastern side of house.
Well located east of house, about 6'; near northeastern corner of house.
Sample collected from spigot located on west side of Greckle residence

VOA sample collected in I-Chem Bottles (Vials) Lot #B6226022.

No Facility Split.

Purged 6 gallons Before Sample Collection began.

House at least 24 years old; well may have been installed in about 1963.

Residence on eastern side of county road; located east of Chain Plant and Former Pipe Mill (Bldgs. on Lockwood Property)

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 019 QCC: F MEDIA: WATER PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: -- -- --
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE: --- -- --

---

SAMPLE DES: FIELD BLANK DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/23/87 9:27 EAST: ----
SMO NO: ------ SHIP NO: 00 LAB: --- END: 09/23/87 9:33 NORTH: ----
STORET/SAROAD NO: ------ DOWN: ----

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	WHITE	HNO3		METALS
CUBI	GREY	FILTER, HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
CUBI	TAN	NONE	WT12	SULFATE AS SO4

COMMENTS:

Field Blank poured following sampling of well M-4, about 5' west of M-4.
Field Blank poured using Region VII Water:
VOAs, used "BNA Blank Water"
other params., used water labelled "For Metals Blanks"

SAMPLE COLLECTED BY : A. Fleitas

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADV02 SAMNO: 020 QCC: F MEDIA: WATER PL: DONA/VERSAR

ACTIVITY DES: LOCKWOOD CORPORATION REF LATITUDE: __ __ __
LOCATION: GERING NE PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: EQUIPMENT BLANK DATE TIME FROM REF PT
LOCATION: GERING NE BEG: 09/22/87 __:__ EAST: ____
SMO NO: _____ SHIP NO: 00 LAB: ___ END: 09/22/87 12:30 NORTH: ____
STORET/SAROAD NO: _____ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	WHITE	HNO3		METALS
CUBI	GREY	FILTER, HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
CUBI	TAN	NONE	WT12	SULFATE AS SO4

COMMENTS:

Equipment Blank poured using Region VII DI water from cubi containers labelled "Cyanide Blanks" and "Metals Blanks".

DI water poured through bailer and bottom emptying device later used for well M-8.

SAMPLE COLLECTED BY : A. Fleitas

SUPPLEMENTAL FIELD SHEET

PL: DONA/VERSAR

FY: 89 ACT NO: ADV02 SAM NO: 021 QCC: F MEDIA: WATER

ACTIVITY DES: LOCKWOOD CORPORATION

LOCATION: GERING NE PROJECT NUM: A60

SAMPLE DES:	DATE	TIME
TRIP BLANK	9/21/87	2300

CONTAINER	COLOR	PRESERV.	NAME
2 VOA VIALS ~~GLASS~~	LIME	ICED	VOLATILES

COMMENTS:

TRIP BLANKS FOR VOAs POURED USING Region VII water labelled "BNA Blank Water"
VOA vials = I CHEM Bottle Lot # B6226022
TRIP Blanks poured offsite in room used as a staging area.

Versar INC.

pH CALIBRATION LOG

Site Lockwood Corporation

Date 9-22-87 Time 0850

Performed by Alicia Fleitas

Instrument:

_____ Digi-Sense Model 5985-20

__✓__ Digi-Sense Model ~~5986-10~~ 5994-10

_____ Presto-Tek PA-11A

_____ Cole Parmer pH Wand Model No. 5985-75

_____ Nester pH pen*

Serial Number 451142

__✓__ Changed buffers in pH kit

Temperature of Buffers (°C) _____

pH of buffers at measured temperature:

7=_____ 4=_____ 10=_____
(See Table 3-3)

__✓7.0__ Calibrated at 7.0 buffer value from Table 3-3.

Readings of other buffers: 4=4.2 10=9.9

pH readings must be ± 0.2 units from table values for proper operation of meter.

*Nester pH pens are not temperature compensating instruments. Sample and buffer temperatures must be equal when using these units.

Procedure performed as per Minimum Standards and Guidelines of Operation, Process and Wastewater Sampling Standards, Section 3.7.3.

AF _____
Initial QA/QC

Versar INC.

SPECIFIC CONDUCTANCE CALIBRATION LOG

SITE Lockwood Corporation

DATE 9/22/87

TIME _____

PERFORMED BY Alicia Fleitas

~~YSI Model 33 S-C-T Meter~~ Cole Parmer Model 1484-10

Serial No. 68-01-6719 (temperature compensating meter)

Expiration Date of ~~0.01N KCl~~ 1000 umhos/cm CONDUCTIVITY Standard Preparation 1/9/88 (YSI 3161)

✓ Changed KCl solution in Calibration Jar

opened bottle cond. std. 9/22/87

Measurements

Temperature of Standard (°C) ____

Uncorrected Reading (umhos/cm) ____

Correction Factor ____

Corrected Reading (umhos/cm) 1000 UMHOS

Calibration Verification

Cell Test Deflection (umhos/cm) N/A

Cell Constant N/A

NOTES:

a. Cell Constant = $\frac{\text{Corrected Rading umhos/cm}}{\text{1408.8 umhos/cm}}$

b. Cell constant must be between 0.95 and 1.05. If not, probe is fouled and requires cleaning.

c. Cell test deflection must be ≤2 percent of uncorrected reading.

Procedure performed as per Minimum Standards and Guidelines of Operation, Process and Wastewater Sampling Standards, Section 3.7.2.

Initial _____ QA/QC _____

Versar INC.

pH CALIBRATION LOG

Site Lockwood Corporation

Date 9/23/87 Time 0915

Performed by Freitas

Instrument:

_____ Digi-Sense Model 5985-20

__✓__ Digi-Sense Model ~~5986-10~~ 5994-10

_____ Presto-Tek PA-11A

_____ Cole Parmer pH Wand Model No. 5985-75

_____ Nester pH pen*

Serial Number 451142

__✓__ Changed buffers in pH kit

Temperature of Buffers (°C) 14°C

pH of buffers at measured temperature:

7= 7.05 4= 3.99 10= 10.12
(See Table 3-3)

/7.0 Calibrated at 7.0 buffer value from Table 3-3.

Readings of other buffers: 4= 3.9 10= 10.0

pH readings must be ± 0.2 units from table values for proper operation of meter.

*Nester pH pens are not temperature compensating instruments. Sample and buffer temperatures must be equal when using these units.

Procedure performed as per Minimum Standards and Guidelines of Operation, Process and Wastewater Sampling Standards, Section 3.7.3.

AF _____
Initial QA/QC

IN SITU DATA SHEET

Site Lockwood

Date 9-22-87

Time 0730 reading

Well No. Greckle Well (private)

Performed by Fields

Specific Conductance	Trial No. 1	Trial No. 2
Temperature °C		
Uncorrected (umhos/cm)		
Correction Factor		
Specific Conductance Corrected (umhos/cm)	1425	1425

pH

Initial sample pH reading:

pH calibration on 7.0 standard:

4 = 4.04 7 = 7.00 10 = 10.00

	Trial No. 1	Trial No. 2
In-Situ Temperature		
Sample pH	6.9	6.9

pH Recheck: 4 = 4.1 7 = 7.0 10 = 10.0

IN SITU DATA SHEET

Site Lockwood
Date 9-22-87
Time Reading 0757
Well No. Miller Well (private)
Performed by Flores

Specific Conductance	Trial No. 1	Trial No. 2
Temperature °C		
Uncorrected (umhos/cm)		
Correction Factor		
Specific Conductance Corrected (umhos/cm)	1375 ~~1400~~	1375

pH

Initial sample pH reading:
pH calibration on 7 standard;

4 = 4.2 7 = 7.0 10 = 10.0

	Trial No. 1	Trial No. 2
In-Situ Temperature		
Sample pH	7.1	7.2

pH Recheck: 4 = 4.2 7 = 7.0 10 = 10.0

IN SITU DATA SHEET

Site ~~MGA~~ Lockwood

Date 9/22/87

Time collected 0850 reading 0855

Well No. Municipal Well No. 6

Performed by Fleitas

Specific Conductance	Trial No. 1	Trial No. 2
Temperature °C		
Uncorrected (umhos/cm)		
Correction Factor		
Specific Conductance Corrected (umhos/cm)	1300	1300

pH

Initial sample pH reading:

pH calibration on _____ standard:

4 = 4.2 7 = 7.0 10 = 9.9

	Trial No. 1	Trial No. 2
In-Situ Temperature		
Sample pH	7.5	7.5

pH Recheck: 4 = 4.2 7 = 7.0 10 = 9.9

IN SITU DATA SHEET

Site Lockwood Corp. M-1
Date 9/22/87
Time* Collected 4:45pm reading 4:50
Well No. M-1
Performed by Elias

Specific Conductance	Trial No. 1	Trial No. 2
Temperature °C	18°C	17°C
Uncorrected (umhos/cm)		
Correction Factor		
Specific Conductance Corrected (umhos/cm)	1250	1250

pH

Initial sample pH reading:
pH calibration on 7 standard:

4 = 3.9 7 = 7.0 10 = 10.1

	Trial No. 1	Trial No. 2
In-Situ Temperature	17°C	17°C
Sample pH	6.6	6.6

pH Recheck: 4 = 3.9 7 = 7.0 10 = 10.4

Time samples collected 1640

*Time in situ sample collected.

IN SITU DATA SHEET

Site Lockwood Corp. M-8
Date 9/22/87
Time* 1400 taken, 1405 reading
Well No. M-8
Performed by A. Fieldes

Specific Conductance	Trial No. 1**	Trial No. 2
Temperature °C	22°C	18°C
Uncorrected (umhos/cm)		
Correction Factor		
Specific Conductance Corrected (umhos/cm)	1025	1010

pH

Initial sample pH reading:
pH calibration on 7 standard:

4 = 3.9 7 = 7.0 10 = 10.1

	Trial No. 1	Trial No. 2
In-Situ Temperature	17°C	17°C
Sample pH	7.0	7.0

pH Recheck: 4 = 3.9 7 = 7.0 10 = 10.2

Time samples collected 1355

* Time Insitu sample collected

** First Trial Temperature Reading, thermometer was not stable.

IN SITU DATA SHEET

Site Lockwood M-4
Date 9/23/87
Time* 0913 collected 0919 reading
Well No. M4
Performed by Alicia Iliitas

Specific Conductance	Trial No. 1	Trial No. 2
Temperature °C	16°C	16°C
Uncorrected (umhos/cm)		
Correction Factor		
Specific Conductance Corrected (umhos/cm)	2,000 ** ~~20,000~~ as	2,000 ** ~~20,000~~ as

pH

Initial sample pH reading:
pH calibration on 7 standard:

4 = 3.9 7 = 7.0 10 = 10.0

	Trial No. 1	Trial No. 2
In-Situ Temperature	16°C	16°C
Sample pH	6.5	6.5

pH Recheck: 4 = 3.9 7 = 7.0 10 = 10.0

Time samples collected 0850
* Time Insitu sample collected
** meter read incorrectly - reason for change as

APPENDIX C

EFFLUENT TANK RECORDS
PROVIDED DURING THE RFA SAMPLING VISIT AT
LOCKWOOD CORPORATION
GERING, NEBRASKA
September 1987

GASAUGUST

LOCKWOOD CORPORATION
TANK INVENTORY RECORD

FACILITY NO: 2718

31-Aug-87

TANK NUMBER: # 1 NORTH TANK CAPACITY: 1,000 GALLONS FUEL: GASOLINE MONTH: YEAR: 1987

1	2	3	4	5	6	7	8	9	10	11	12
DATE	OPENING (GALLONS) INVENTORY	DELIVERIES (GALLONS)	TOTAL 2+3	CLOSING (INCHES)	CLOSING (GALLONS) INVENTORY 757	GONE FROM TANK 4-6	METER SALES (GALLONS)	DIFFERENCE 8-7	VARIANCE	METER READING (OPENING) 57,382	WEEKLY WATER CHECK (INCHES)
08/03/87	757		757	29	653	104	122	18	18	57504	0
08/04/87	653		653	28	625	28	38	10	10	57542	
08/05/87	625		625	26	572	53	54	1	1	57596	
08/06/87	572		572	23	490	82	74	-8	8	57670	
08/07/87	490		490	21	435	55	56	1	1	57726	
08/10/87	435		435	17	328	107	103	-4	4	57829	0
08/11/87	328	674	1,002	42	959	43	47	4	4	57876	
08/12/87	959		959	40	920	39	36	-3	3	57912	
08/13/87	920		920	37	855	65	51	-14	14	57963	
08/14/87	855		855	35	807	48	67	19	19	58030	
08/17/87	807		807	32	732	75	(26)	-101	101	58004	0
08/18/87	732		732	29	653	79	185	106	106	58189	
08/19/87	653	347	1,000	42	959	41	40	-1	1	58229	
08/20/87	959		959	37	855	104	85	-19	19	58314	
08/21/87	855		855	36	831	24	30	6	6	58344	
08/22/87	831		831	36	831	0	0	0	0	58344	
08/23/87	831		831	36	831	0	0	0	0	58344	

GASAUGUST

LOCKWOOD CORPORATION
TANK INVENTORY RECORD

FACILITY NO: 2718

31-Aug-87

TANK NUMBER: # 1 NORTH TANK CAPACITY: 1,000 GALLONS FUEL: GASOLINE MONTH: YEAR: 1987

1	2	3	4	5	6	7	8	9	10	11	12
DATE	OPENING (GALLONS) INVENTORY	DELIVERIES (GALLONS)	TOTAL 2+3	CLOSING (INCHES)	CLOSING (GALLONS) INVENTORY 757	GONE FROM TANK 4-6	METER SALES (GALLONS)	DIFFERENCE 8-7	VARIANCE	METER READING (OPENING) 57,382	WEEKLY WATER CHECK (INCHES)
08/24/87	831		831	34	783	48	48	0	0	58392	
08/25/87	783		783	33	757	26	37	11	11	58429	
08/26/87	757		757	32	732	25	56	31	31	58485	
08/27/87	732		732	29	653	79	52	-27	27	58537	
08/28/87	653		653	27	599	54	38	-16	16	58575	
08/31/87	599		599	22	462	137	151	14	14	58726	
TOTAL		1,021				1,316	1,344	28	28		

xc: Roy Dugan

File: Underground Storage Tank

DIELSELAUGUST

LOCKWOOD CORPORATION
TANK INVENTORY RECORD

FACILITY NO: 2718 31-Aug-87

TANK NUMBER: #2 SOUTH TANK CAPACITY: 6,000 GALLONS FUEL: DIESEL MONTH: YEAR: 1987

1	2	3	4	5	6	7	8	9	10	11	12
DATE	OPENING (GALLONS) INVENTORY	DELIVERIES (GALLONS)	TOTAL 2+3	CLOSING (INCHES)	CLOSING (GALLONS) INVENTORY 784	GONE FROM TANK 4-6	METER SALES (GALLONS)	DIFFERENCE 8-7	VARIANCE	METER READING (OPENING) 31985	WEEKLY WATER CHECK (INCHES)
08/03/87	784		784	18	784	0	26	26	26	32011	0
08/04/87	784		784	18	784	0	14	14	14	32025	
08/05/87	784		784	17	723	61	8	-53	53	32033	
08/06/87	723		723	17	723	0	14	14	14	32047	
08/07/87	723		723	17	723	0	28	28	28	32075	
08/10/87	723		723	16	662	61	37	-24	24	32112	0
08/11/87	662		662	16	662	0	36	36	36	32148	
08/12/87	662		662	16	662	0	0	0	0	32148	
08/13/87	662		662	15	603	59	26	-33	33	32174	
08/14/87	603		603	15	603	0	42	42	42	32216	
08/15/87	603		603	14	558	45	23	-22	22	32239	
08/16/87	558		558	14	558	0	0	0	0	32239	
08/17/87	558		558	14	558	0	13	13	13	32252	
08/18/87	558		558	14	558	0	0	0	0	32252	
08/19/87	558		558	14	558	0	0	0	0	32252	
08/20/87	558		558	13	490	68	51	-17	17	32303	
08/21/87	490		490	13	490	0	37	37	37	32340	

DIELSELAUGUST

LOCKWOOD CORPORATION
TANK INVENTORY RECORD

FACILITY NO: 2718 31-Aug-87

TANK NUMBER: #2 SOUTH TANK CAPACITY: 6,000 GALLONS FUEL: DIESEL MONTH: YEAR: 1987

1	2	3	4	5	6	7	8	9	10	11	12
DATE	OPENING (GALLONS) INVENTORY	DELIVERIES (GALLONS)	TOTAL 2+3	CLOSING (INCHES)	CLOSING (GALLONS) INVENTORY 784	GONE FROM TANK 4-6	METER SALES (GALLONS)	DIFFERENCE 8-7	VARIANCE	METER READING (OPENING) 31985	WEEKLY WATER CHECK (INCHES)
08/24/87	490		490	13	490	0	14	14	14	32354	
08/25/87	490		490	12	436	54	0	-54	54	32354	
08/26/87	436		436	12	436	0	35	35	35	32389	
08/27/87	436		436	11	384	52	31	-21	21	32420	
08/28/87	384		384	11	384	0	0	0	0	32420	
08/31/87	384		384	10	338	46	59	13	13	32479	
TOTAL		0				446	494	48	48		

xc: Roy Dugan

File: Underground Storage Tank

[redacted] received from Henry Pina 9/22/87

TANK87
PREPARED BY: CAROL DUGAN

LOCKWOOD CORPORATION
GALVANIZING WASTE ACID & CAUSTIC
1987 TANK PUMPING LOG

01-Sep-87
11:02 AM

TANK CAPACITY: 19,200 GALLONS

DATE PUMPED	INCHES . BEGINNING	INCHES ENDING	EST. SLUDGE INCHES	GALLONS ENDING	CHANGE GALLONS	CAUSTIC %	ACID %	IRON %	Ph	COMMENTS	MANIFEST NUMBERS	GALLONS PICKED UP
04-16-87	46	40	20	4,800	(1,440)					Eason & Smith picked up (1 truck)	8776	3,857
04-17-87	40	40	20	4,800	0					Added 200 gallons Cimcool		
04-17-87	40	54	20	8,160	3,360		12.0%	2.1%	< 1.00	Pumped East acid tank (oil)		
04-20-87	54	54	20	8,160	0					Added 200 gallons of Cimcool		
04-23-87	54	54	20	8,160	0					Checked tank		
04-24-87	54	55	20	8,400	240					Added 200 gallons of Cimcool		
04-27-87	55	37	20	4,080	(4,320)					Eason & Smith picked up (2 trucks)	18569 & 18570	7,677
04-29-87	37	37	20	4,080	0					Added 200 gallons of Cimcool		
05-01-87	37	37	21	3,840	(240)					Checked tank		
05-01-87	37	57	21	8,640	4,800		11.0%	5.1%	0.07	Pumped West acid tank		
05-06-87	57	57	21	8,640	0					Checked tank		
05-06-87	57	57	21	8,640	0					Added 200 gallons of Cimcool		
05-11-87	57	57	21	8,640	0					Checked tank		
05-11-87	57	28	21	1,680	(6,960)					Eason & Smith picked up (2 trucks)	18572 & 18573	7,538
05-12-87	28	28	21	1,680	0					Added 200 gallons of Cimcool		
05-13-87	28	29	21	1,920	240					Added 200 gallons of Cimcool		
05-15-87	29	57	21	8,640	6,720		9.0%	4.0%	0.07	Pumped East acid tank		
05-29-87	57	50	22	6,720	(1,920)					Eason & Smith picked up (1 truck)	18575	3,954
05-29-87	50	44	22	5,280	(1,440)					Eason & Smith picked up (1 truck)	18576	3,690
06-01-87	44	32	22	2,400	(2,880)					Eason & Smith picked up (2 trucks)	18581 & 18583	7,316
06-08-87	32	54	22	7,680	5,280		6.0%	4.0%	0.07	Pumped West acid tank		
06-15-87	54	54	22	7,680	0					Checked Tank		
06-22-87	54	54	22	7,680	0					Added 200 gallons of Cimcool		
06-30-87	54	54	24	7,200	(480)					Checked tank		
07-06-87	54	62	24	9,120	1,920					Pumped caustic tank (hole)		
07-01-87	62	56	24	7,680	(1,440)					Eason & Smith picked up (1 truck)	18584	3,643
07-09-87	56	28	24	960	(6,720)					Eason & Smith picked up (2 trucks)	8778 & 8779	7,921
07-16-87	28	28	24	960	0					Checked tank		
07-23-87	28	28	25	720	(240)					Checked tank		
07-28-87	28	29	25	960	240					Pumped pit (water line leak)		
07-29-87	29	49	25	5,760	4,800		5.0%	5.5%	0.08	Pumped East acid tank		
08-03-87	49	51	25	6,240	480					Added 200 Gal. of Cimcool		
08-06-87	51	25	25	0	(6,240)					Eason & Smith picked up (2 trucks)	8780 & 8781	7,951
08-14-87	25	42	25	4,080	4,080		4.0%	6.5%	0.09	Pumped West Acid Tank		
9 -[illegible]-87	42	44	26	4560	(480)					Added 480 of Cimcool		
9 -[illegible]-87	44	67	26	10050	5520		12%	5.4%	.08	Pumped East Acid Tank		
9 -[illegible]-87	67	39	24	3360	6720					Eason & Smith Picked up (2 Trucks)	8784 & 8785	

TANK87
PREPARED BY: CAROL DUGAN

LOCKWOOD CORPORATION
GALVANIZING WASTE ACID & CAUSTIC
1987 TANK PUMPING LOG

01-Sep-87
11:02 AM

TANK CAPACITY: 19,200 GALLONS

DATE PUMPED	INCHES BEGINNING	INCHES ENDING	EST. SLUDGE INCHES	GALLONS ENDING	CHANGE GALLONS	CAUSTIC %	ACID %	IRON %	Ph	COMMENTS	MANIFEST NUMBERS	GALLONS PICKED UP
[illegible]										Facon Chemical Pick up (1 Truck)	18571	3871
[illegible]	39	25	25	0	3360					pumped West Acid Tank		
[illegible]	25	50	25	6000	5640		11%	5.1	.07	added Caustic 700gls		
[illegible]	50	53	20							Facon picked up 2 Tanks	186104 35827	7,362
[illegible]	53	20	20				11	2.7	.05	Pumped west acid Tank		
[illegible]	20	39	20									

TANK LIQUID DEPTH MUST BE CHECKED WEEKLY (MINIMUM)
NOTE: 1" = 240 GALLONS
CIMCOOL FIVE STAR 40 MACHINE COOLANT FROM THE MACHINE SHOP

cc: Roy Dugan
Bob Knoles
Joe Snyder

Received from Jerry Carpenter 9/22/87

Sept 1st to Sept 30th 1987

Date	Prepared By	Work Paper No.
	Reviewed By	

	Five Days	Every Day	1	2	3	4
				# 4 2100 per Hr 350 per min		# 8 24000 Per Hr 450 Per min
1		6,010,000	420848	234324	138855	455557
2		5,826,000	421035	234563	138855	455557
3		7,512,000	421428	234802	138855	455557
4		3,870,000	421783	235043	138855	455557
5	27,756,000	4,498,000	422181	235288	138855	455557
6		3,368,000	422469	235517	138855	455557
7		3,780,000	422820	235759	138855	455557
8		3,714,000	423246	236007	138855	455557
9		5,406,000	423634	236242	138855	455557
10	16,455,000	3,996,000	424022	236442	138855	455557
11		3,294,000	424427	236722	138855	455557
12		5,994,000	424914	236960	138855	455557
13		6,306,000	425422	237212	138855	455557
14		13,494,000	425524	237441	138855	455557
15		2,174,000	425916	237689	138855	455557
16		2,319,000	426313	237920	138855	455557
17			426696	238159	138855	455557
18			427094	238400		
19			427924	238903		
20	RUN 24 hrs		428293	239123		
21	9-20-87		↓			
22			424694	239360		
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						

APPENDIX D

SAMPLE DOCUMENTATION FOR THE RFA SAMPLING VISIT AT
LOCKWOOD CORPORATION
GERING, NEBRASKA
September 1987

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
R DONA / R. DICKINSON	LOCKWOOD CORPORATION	9 / 21 / 89	1 of 1

CONTENTS OF SHIPMENT

SAMPLE NUMBER	TYPE OF CONTAINERS: CUBITAINER	8 oz VIALS	8 oz BOTTLES	BOTTLE	VOA SET (2 VIALS EA)	SAMPLED MEDIA: water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
001		1	1				✓				
002		1	1				✓				
003		1	1				✓				
004		1	1				✓				
005		1	1				✓				
006		1	1				✓				
007		1	1				✓				
008		1	1				✓				
009		1	1				✓				
010		1	1				✓				
011		1	1				✓				
012		1	1				✓				
011D		1	1				✓				

DESCRIPTION OF SHIPMENT

___ PIECE(S) CONSISTING OF ___ BOX(ES)

1 ICE CHEST(S); OTHER ___

MODE OF SHIPMENT

✓ COMMERCIAL CARRIER: Federal Express

___ COURIER

___ SAMPLER CONVEYED

5229719983 (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Ruth Dickinson ☐ SEALED ☐ UNSEALED	9/21/89	6:20 pm	☐ SEALED ☐ UNSEALED	
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
R. Dona / R. Dickinson	LOCKWOOD CORPORATION	22 / 7 / 87	1 of 2

CONTENTS OF SHIPMENT

SAMPLE NUMBER	TYPE OF CONTAINERS: 1 Liter CONTAINER	BOTTLE	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	SAMPLED MEDIA: water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
ADV02-016	4				1	✓					
-016D	4				1	✓					
-017	4				1	✓					
-018	4				1	✓					

DESCRIPTION OF SHIPMENT

____ PIECE(S) CONSISTING OF ____ BOX(ES)

2 ICE CHEST(S); OTHER ____

MODE OF SHIPMENT

✓ COMMERCIAL CARRIER: Federal Express

____ COURIER

____ SAMPLER CONVEYED

5229719972 (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Keith Dickenson ☒ SEALED ☐ UNSEALED	7-22-87	6:15pm	☐ SEALED ☐ UNSEALED	
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
R. Dona / R. Dickinson	Lockwood Corporation	22 / 9 / 87	2 of 2

CONTENTS OF SHIPMENT

SAMPLE NUMBER	TYPE OF CONTAINERS: Liter CUBITAINER	BOTTLE	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	SAMPLED MEDIA: water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
ADV02-013	4				1	✓					
-015	4				1	✓					
-020F	4				1	✓					

DESCRIPTION OF SHIPMENT

____ PIECE(S) CONSISTING OF ____ BOX(ES)
2 TOTAL ICE CHEST(S); OTHER ____

MODE OF SHIPMENT

✓ COMMERCIAL CARRIER: Federal Express
____ COURIER
____ SAMPLER CONVEYED
5229719972 (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Ruth Dickinson ☒ SEALED ☐ UNSEALED	9/22/87	6:15pm	☐ SEALED ☐ UNSEALED	
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
R. Dona / R. Dickinson	Lockwood Corporation	23 / 09 / 87	1 of 1

CONTENTS OF SHIPMENT

SAMPLE NUMBER	TYPE OF CONTAINERS: 1 liter CONTAINER	BOTTLE	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	SAMPLED MEDIA: water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
ADV02-019F	4				1	✓					
-021F	—				1	✓					
-014	4				1	✓					
-014D	4				1	✓					
END OF SAMPLING EVENT											
NOTHING TO FOLLOW											

DESCRIPTION OF SHIPMENT

____ PIECE(S) CONSISTING OF ____ BOX(ES)

1 ICE CHEST(S); OTHER ____

MODE OF SHIPMENT

✓ COMMERCIAL CARRIER: Federal Express

____ COURIER

____ SAMPLER CONVEYED

5229714394 (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Ruth Dickinson	9/23/87	1015	SEALED / UNSEALED	
X SEALED UNSEALED				
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
SEALED UNSEALED			SEALED UNSEALED	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
SEALED UNSEALED			SEALED UNSEALED	

CHAIN OF CUSTODY RECORD FOR LOCKWOOD SAMPLES*

ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
Ruth Dickinson (Versar Inc)	Lockwood Corporation	22-23 / 9 / 87	1 of 1

CONTENTS OF SHIPMENT

SAMPLE NUMBER	TYPE OF CONTAINERS: 1 Liter CUBITAINER	amber BOTTLE	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	SAMPLED MEDIA: water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
Well #M-8	1					✓					
Well #M-1	1					✓					
Well #M-4	1	4				✓					

DESCRIPTION OF SHIPMENT

_____ PIECE(S) CONSISTING OF _____ BOX(ES)

_____ ICE CHEST(S); OTHER _____

MODE OF SHIPMENT

✓ COMMERCIAL CARRIER: _____

_____ COURIER

_____ SAMPLER CONVEYED

_____ (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
☐ SEALED ☐ UNSEALED			☐ SEALED ☐ UNSEALED	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
☐ SEALED ☐ UNSEALED			☐ SEALED ☐ UNSEALED	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
☐ SEALED ☐ UNSEALED			☐ SEALED ☐ UNSEALED	

7-EPA-9262(Revised 5/85)

*SAMPLES COLLECTED BY VERSAR FOR LOCKWOOD CORP.

U.S. ENVIRONMENTAL PROTECTION AGENCY

RECEIPT FOR SAMPLES AND DOCUMENTS

Inspector(s) Name and Address	Firm Name and Address
Ruth Dickinson Versar Inc 6850 Versar Center Springfield, Virginia 22151 U.S. EPA, Region VII ENSV Division 25 Funston Road Kansas City, Kansas 66115	Lockwood Corporation Highway 92 East Gering, Nebraska 69341 Name of Individual Bob Knecks Title Foreman. Galvanizing Operation
Date Collected: September 21, 1987	Samples were: ( ) Purchased
	(✓) Received no charge ( ) Borrowed
Sample Numbers: C01 to C12	Amount paid for Samples: N/A
Duplicate Samples Requested: ( ) Yes (✓) No	Method of Payment: N/A ( ) Cash ( ) Voucher ( ) To be Billed

The documents and samples of chemical substances and/or mixtures described below were collected in connection with the administration and enforcement of the Resource Conservation and Recovery Act.

Receipt for the document(s) and/or Sample(s) described below is hereby acknowledged:

C01 RP1 - raw product storage area, waste paint
C02 RP2 - " " " ", oil
C03 DAL - drainage area
C04 HWSA - Hazardous Waste Storage Area
C05 Background, N. of Raw Product Storage Area
C06 WC1 - waste Oil Area, full
C07 WO2 - waste oil Area, full
C08 WO3 - waste Oil Area, empty
C09 WC4 - waste Oil Area, full
C10 Background
C11 SMWB1 - Scrap Metal Waste Bin (~~sheet~~ chips)
C11D SMWB1 - " " " " ", duplicate
C12 SMWB2 - Scrap Metal Waste Bin (chips)

Signature (Owner, Operator, or Agent)	Title
Bob Knecks	Foreman
Name of Inspector / Title	**Inspector's Signature**
RUTH A. DICKINSON WRA ASSIGNMENT MANAGER	Ruth A. Dickinson

U.S. ENVIRONMENTAL PROTECTION AGENCY

RECEIPT FOR SAMPLES AND DOCUMENTS

Inspector(s) Name and Address	Firm Name and Address
Ruth Dickinson Versar Inc 6850 Versar Center Springfield, VA 22151 U.S. EPA, Region VII ENSV Division 25 Funston Road Kansas City, Kansas 66115	Ted B. Miller Co. Name of Individual Ted Miller III Title Pres. Miller
Date Collected: 9/22/87	Samples were: ( ) Purchased
	(✓) Received no charge ( ) Borrowed
Sample Numbers: 7-ADVC2-017	Amount paid for Samples: Not Applicable
Duplicate Samples Requested: ( ) Yes (✓) No	Method of Payment: Not Applicable ( ) Cash ( ) Voucher ( ) To be Billed

The documents and samples of chemical substances and/or mixtures described below were collected in connection with the administration and enforcement of the Resource Conservation and Recovery Act.

Receipt for the document(s) and/or Sample(s) described below is hereby acknowledged:

7-ADVC2-017

Sample Parameters:
- Volatile Organics
- Cyanide
- Metals
- Dissolved Metals
- Sulfate

Signature (Owner, Operator, or Agent	Title
Ted Miller	

Name of Inspector	Title	Inspector's Signature
Ruth A. Dickinson	Work Assignment Manager	Ruth Dickinson

U.S. ENVIRONMENTAL PROTECTION AGENCY

RECEIPT FOR SAMPLES AND DOCUMENTS

Inspector(s) Name and Address KUTH DICKINSON VERSAR INC 6850 Versar Center Springfield, VA 22151 U.S. EPA, Region VII ENSV Division 25 Funston Road Kansas City, Kansas 66115	Firm Name and Address Private Well Rose and Rose Grechel RR1 Box 25 GERING NE 69341 Name of Individual Rose Grechel Title Homeowner
Date Collected: 9/22/87	Samples were: ( ) Purchased (X) Received no charge ( ) Borrowed
Sample Numbers: ADV02 018	Amount paid for Samples: Not Applicable
Duplicate Samples Requested: ( ) Yes (X) No	Method of Payment: Not Applicable ( ) Cash ( ) Voucher ( ) To be Billed

The documents and samples of chemical substances and/or mixtures described below were collected in connection with the administration and enforcement of the Resource Conservation and Recovery Act.

Receipt for the document(s) and/or Sample(s) described below is hereby acknowledged:

1 ADV02-018

Sample Parameters:

Volatiles Organics
Cyanide
Metals
Dissolved Metals
Sulfate

Signature (Owner, Operator, or Agent	Title
Rose Grechel	Owner
Name of Inspector / **Title**	**Inspector's Signature**
Ruth A. Dickinson Work Assignment Manager	RUTH A. DICKINSON

U.S. ENVIRONMENTAL PROTECTION AGENCY

RECEIPT FOR SAMPLES AND DOCUMENTS

Inspector(s) Name and Address	Firm Name and Address
RUTH DICKINSON Versar Inc. 6850 Versar Center Springfield, VA 22151 U.S. EPA, Region VII ENSV Division 25 Funston Road Kansas City, Kansas 66115	Gering City Offices 1452 10th Street Gering, Nebraska 69341 Name of Individual Bill Boyle Title Electric Superintendent
Date Collected: 9/22/89	Samples were: ( ) Purchased (X) Received no charge ( ) Borrowed
Sample Numbers: 7-ADVC2-C16 7-ADVC2-C16D	Amount paid for Samples: Not Applicable
Duplicate Samples Requested: ( ) Yes (X) No	Method of Payment: Not Applicable ( ) Cash ( ) Voucher ( ) To be Billed

The documents and samples of chemical substances and/or mixtures described below were collected in connection with the administration and enforcement of the Resource Conservation and Recovery Act.

Receipt for the document(s) and/or Sample(s) described below is hereby acknowledged:

ADVC2-C16
ADVC2-C16D (duplicate)
Sample parameters:
Volatile Organics
Cyanide
Metals
Dissolved Metals
Sulfate

Signature (Owner, Operator, or Agent)	Title
[signature]	Electric Supt.
Name of Inspector	**Title** / **Inspector's Signature**
RUTH DICKINSON	WORK ASSIGNMENT MANAGER [signature]

Versar INC.

Receipt for Samples
~~CHAIN OF CUSTODY RECORD~~

PROJECT NO.	PROJECT NAME
ADV02	Lockwood Corporation

SAMPLERS: (Signature) Ruth A. Dickinson, Alicia Fleitas (Printed) RUTH A. DICKINSON, ALICIA FLEITAS

PARAMETERS: NO. OF CONTAINERS; VOA; Total Metals; Dissolved Metals; Sulfate as SO_4; Cyanide, Total; INDUSTRIAL HYGIENE SAMPLE (Y / N)

	FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOA	Total Metals	Dissolved Metals	Sulfate as SO_4	Cyanide, Total				REMARKS
7-	ADV02-013	9/22/87	1640		✓	Monitoring Well M-1	6	2	1	1	1	1				
7-	ADV02-015	9/22/87	1355		✓	Monitoring Well M-8	6	2	1	1	1	1				
7-	ADV02-020F	9/22/87	1230		✓	Equipment Blank	6	2	1	1	1	1				Taken near Mon. Well M-8
7-	ADV02-016	9/22/87	0840		✓	Municipal Well 6	6	2	1	1	1	1				
7-	ADV02-016D	9/22/87	0845		✓	Municipal Well 6	6	2	1	1	1	1				Duplicate
7-	ADV02-017	9/22/87	0748		✓	Private Well - Miller	6	2	1	1	1	1				
7-	ADV02-018	9/22/87	0725		✓	Private Well - Greckle	6	2	1	1	1	1				
7-	ADV02-014	9/23/87	0850		✓	Monitoring Well M-4	6	12	1	1	1	1				
7-	ADV02-014D	9/23/87	0900		✓	Monitoring Well M-4	6	2	1	1	1	1				Duplicate
7-	ADV02-019F	9/23/87	0930		✓	Field Blank	6	2	1	1	1	1				Taken near Mon. Well M-4
7-	ADV02-021F	9/21/87	2300		✓	Trip Blank	2	2								

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Roy B. Dugan	9/23/87 11:45 AM	Ruth Dickinson			
(Printed)		(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
(Printed)		(Printed)		

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

Versar INC.

pH CALIBRATION LOG

Site Lockwood Corporation

Date 9-22-87 Time 0850

Performed by Alicia Fleitas

Instrument:

_____ Digi-Sense Model 5985-20

__✓__ Digi-Sense Model ~~5986-10~~ 5994-10

_____ Presto-Tek PA-11A

_____ Cole Parmer pH Wand Model No. 5985-75

_____ Nester pH pen*

Serial Number 45 1142

__✓__ Changed buffers in pH kit

Temperature of Buffers (°C) _____

pH of buffers at measured temperature:

7=_____ 4=_____ 10=_____
(See Table 3-3)

__✓7.0__ Calibrated at 7.0 buffer value from Table 3-3.

Readings of other buffers: 4= 4.2 10= 9.9

pH readings must be ± 0.2 units from table values for proper operation of meter.

*Nester pH pens are not temperature compensating instruments. Sample and buffer temperatures must be equal when using these units.

Procedure performed as per Minimum Standards and Guidelines of Operation, Process and Wastewater Sampling Standards, Section 3.7.3.

QA
Initial

_____
QA/QC

Versar INC.

SPECIFIC CONDUCTANCE CALIBRATION LOG

SITE Lockwood Corporation

DATE 9/22/87

TIME _____

PERFORMED BY Alicia Elertas

~~YSI Model 33 S-C-T Meter~~ Cole Parmer Model 1484-10

Serial No. 68-01-6719 (temperature compensating meter)

Expiration Date of ~~0.01N KCl~~ 1000 umhos/cm CONDUCTIVITY Standard Preparation 1/9/88 (YSI 3161)

✓ Changed KCl solution in Calibration Jar

opened bottle cond. std. 9/22/87

Measurements

Temperature of Standard (°C) _____

Uncorrected Reading (umhos/cm) _____

Correction Factor _____

Corrected Reading (umhos/cm) 1000 UMHOS

Calibration Verification

Cell Test Deflection (umhos/cm) N/A

Cell Constant N/A

NOTES:

a. Cell Constant = $\frac{\text{Corrected Rading umhos/cm}}{\text{1408.8 umhos/cm}}$

b. Cell constant must be between 0.95 and 1.05. If not, probe is fouled and requires cleaning.

c. Cell test deflection must be ≤2 percent of uncorrected reading.

Procedure performed as per Minimum Standards and Guidelines of Operation, Process and Wastewater Sampling Standards, Section 3.7.2.

_____ Initial

_____ QA/QC

Versar INC.

pH CALIBRATION LOG

Site Lockwood Corporation

Date 9/23/87 Time 0915

Performed by Freitas

Instrument:

_____ Digi-Sense Model 5985-20

__✓__ Digi-Sense Model ~~5986-10~~ 5994-10

_____ Presto-Tek PA-11A

_____ Cole Parmer pH Wand Model No. 5985-75

_____ Nester pH pen*

Serial Number 451142

__✓__ Changed buffers in pH kit

Temperature of Buffers (°C) 14°C

pH of buffers at measured temperature:

7= 7.05 4= 3.99 10= 10.12

(See Table 3-3)

7.0 Calibrated at 7.0 buffer value from Table 3-3.

Readings of other buffers: 4= 3.9 10= 10.0

pH readings must be ± 0.2 units from table values for proper operation of meter.

*Nester pH pens are not temperature compensating instruments. Sample and buffer temperatures must be equal when using these units.

Procedure performed as per Minimum Standards and Guidelines of Operation, Process and Wastewater Sampling Standards, Section 3.7.3.

RF
Initial

_____
QA/QC

IN SITU DATA SHEET

Site Lockwood

Date 9-27-87

Time 0730 reading

Well No. Greckle Well (pressure)

Performed by Fields

Specific Conductance	Trial No. 1	Trial No. 2
Temperature °C		
Uncorrected (umhos/cm)		
Correction Factor	—	
Specific Conductance Corrected (umhos/cm)	1425	1425

pH

Initial sample pH reading:

pH calibration on 7.0 standard;

4 = 4.04 7 = 7.00 10 = 10.00

	Trial No. 1	Trial No. 2
In-Situ Temperature		
Sample pH	6.9	6.9

pH Recheck: 4 = 4.1 7 = 7.0 10 = 10.0

IN SITU DATA SHEET

Site Lockwood
Date 9-22-87
Time Reading 0757
Well No. Miller Well (private)
Performed by Fleitas

Specific Conductance	Trial No. 1	Trial No. 2
Temperature °C		
Uncorrected (umhos/cm)		
Correction Factor		
Specific Conductance Corrected (umhos/cm)	1375 ~~1400~~	1375

pH

Initial sample pH reading:
pH calibration on 7 standard;

4 = 4.2 7 = 7.0 10 = 10.0

	Trial No. 1	Trial No. 2
In-Situ Temperature		
Sample pH	7.1	7.2

pH Recheck: 4 = 4.2 7 = 7.0 10 = 10.0

IN SITU DATA SHEET

Site ~~MW-A~~ Lockwood

Date 9/22/87

Time collected 0850 reading 0855

Well No. Municipal Well No. 6

Performed by Fleitas

Specific Conductance	Trial No. 1	Trial No. 2
Temperature °C		
Uncorrected (umhos/cm)		
Correction Factor		
Specific Conductance Corrected (umhos/cm)	1300	1300

pH

Initial sample pH reading:

pH calibration on _____ standard:

4 = 4.2 7 = 7.0 10 = 9.9

	Trial No. 1	Trial No. 2
In-Situ Temperature		
Sample pH	7.6	7.5

pH Recheck: 4 = 4.2 7 = 7.0 10 = 9.9

IN SITU DATA SHEET

Site Lockwood Corp. M-1
Date 9/22/87
Time* Collected 4:45pm reading 4:50
Well No. M-1
Performed by Eletas

Specific Conductance	Trial No. 1	Trial No. 2
Temperature °C	18°C	17°C
Uncorrected (umhos/cm)		
Correction Factor		
Specific Conductance Corrected (umhos/cm)	1250	1250

pH

Initial sample pH reading:
pH calibration on 7 standard:

4 = 3.9 7 = 7.0 10 = 10.1

	Trial No. 1	Trial No. 2
In-Situ Temperature	17°C	17°C
Sample pH	6.5	6.5

pH Recheck: 4 = 3.9 7 = 7.0 10 = 10.4

Time samples collected 1640

*Time in situ sample collected.

IN SITU DATA SHEET

Site Lockwood Corp. M-8
Date 9/22/87
Time* 1400 taken, 1405 reading
Well No. M-8
Performed by A Freitas

Specific Conductance	Trial No. 1**	Trial No. 2
Temperature °C	22°C	18°C
Uncorrected (umhos/cm)		
Correction Factor		
Specific Conductance Corrected (umhos/cm)	1025	1010

pH

Initial sample pH reading:
pH calibration on 7 standard:

4 = 3.9 7 = 7.0 10 = 10.1

	Trial No. 1	Trial No. 2
In-Situ Temperature	17°C	17°C
Sample pH	7.0	7.0

pH Recheck: 4 = 3.9 7 = 7.0 10 = 10.2

Time samples collected 1355

* Time Insitu sample collected

** First Trial Temperature Reading, thermometer not stable.

IN SITU DATA SHEET

Site Lockwood M-4
Date 9/23/87
Time* 0913 collected 0917 reading
Well No. M4
Performed by Alicia Stuitas

Specific Conductance	Trial No. 1	Trial No. 2
Temperature °C	16°C	16°C
Uncorrected (umhos/cm)		
Correction Factor		
Specific Conductance Corrected (umhos/cm)	2,000 ** ~~20,000~~ as	2,000 ** ~~20,000~~ as.

pH

Initial sample pH reading:
pH calibration on 7 standard:

4 = 3.9 7 = 7.0 10 = 10.0

	Trial No. 1	Trial No. 2
In-Situ Temperature	16°C	16°C
Sample pH	6.5	6.5

pH Recheck: 4 = 3.9 7 = 7.0 10 = 10.0

Time samples collected 0850
* Time Insitu sample collected
** meter read incorrectly - reason for change as

APPENDIX E

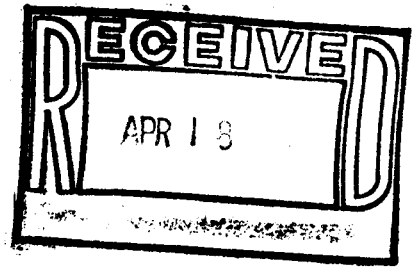
ANALYTICAL DATA FOR THE RFA SAMPLING VISIT AT
LOCKWOOD CORPORATION
GERING, NEBRASKA
September 1987

ANALYSIS REQUEST REPORT

FOR ACTIVITY: ADV02

RBD
DONA/VERSAR

04/05/88 12:18:34



FY: 87 ACTIVITY: ADV02 DESCRIPTION: LOCKWOOD CORPORATION LOCATION: GERING NEBRASKA

STATUS: ACTIVE TYPE: SAMPLING - CONTRACT LAB ANALYSIS PROJECT: A60

LABO DUE DATE IS 11/14/87. REPORT DUE DATE IS 12/ 5/87.

INSPECTION DATE: 9/23/87 ALL DATA APPROVED BY LABO DATE: 03/21/88 FINAL REPORT TRANSMITTED DATE: 00/00/00

EXPECTED LABO TURNAROUND TIME IS 52 DAYS EXPECTED REPORT TURNAROUND TIME IS 73 DAYS

ACTUAL LABO TURNAROUND TIME IS 180 DAYS ACTUAL REPORT TURNAROUND TIME IS 0 DAYS

SAMP. NO.	QCC	M	DESCRIPTION	CITY	STATE	STORET/ SAROAD LOC NO	BEG. DATE	BEG. TIME	END. DATE	END. TIME
001		S	RAW PRODUCT STORAGE AREA - 1	GERING	NEBRASKA		09/21/87	14:45	09/21/87	14:50
002		S	RAW PRODUCT STORAGE AREA - II	GERING	NEBRASKA		09/21/87	15:00	09/21/87	:
003		S	DRAINAGE AREA - I	GERING	NEBRASKA		09/21/87	16:50	09/21/87	:
004		S	HAZARDOUS WASTE SOTRAGE AREA 1	GERING	NEBRASKA		09/21/87	17:00	09/21/87	17:15
005		S	BACKGROUND SOIL - RP	GERING	NEBRASKA		09/21/87	15:13	09/21/87	:
006		S	WASTE OIL STORAGE AREA - I	GERING	NEBRASKA		09/21/87	13:20	09/21/87	:
007		S	WASTE OIL STORAGE AREA - II	GERING	NEBRASKA		09/21/87	13:30	09/21/87	:
008		S	WASTE OIL STORAGE AREA - III	GERING	NEBRASKA		09/21/87	13:40	09/21/87	:
009		S	WASTE OIL STORAGE AREA - IV	GERING	NEBRASKA		09/21/87	14:05	09/21/87	:
010		S	BACKGROUND SOIL - WO	GERING	NEBRASKA		09/21/87	14:15	09/21/87	:
011		S	SCRAP METAL WASTE BIN 1	GERING	NEBRASKA		09/21/87	16:35	09/21/87	:
011	D	S	SCRAP METAL WASTE BIN 1	GERING	NEBRASKA		09/21/87	16:35	09/21/87	:
012		S	SCRAP METAL WASTE BIN	GERING	NEBRASKA		09/21/87	16:15	09/21/87	:
013		W	MONITORING WELL M-1	GERING	NEBRASKA		09/22/87	16:30	09/22/87	16:45
014		W	MONITORING WELL M-4	GERING	NEBRASKA		09/23/87	08:45	09/23/87	09:13
014	D	W	MONITORING WELL M-4	GERING	NEBRASKA		09/23/87	08:45	09/23/87	09:13
015		W	MONITORING WELL M-6	GERING	NEBRASKA		09/22/87	13:50	09/22/87	14:00
016		W	MUNICIPAL WELL 6	GERING	NEBRASKA		09/22/87	08:40	09/22/87	08:50
016	D	W	MUNICIPAL WELL 6	GERING	NEBRASKA		09/22/87	08:40	09/22/87	08:50
017		W	PRIVATE WELL-MILLER	GERING	NEBRASKA		09/22/87	07:46	09/22/87	07:49
018		W	PRIVATE WELL-GRECKLE	GERING	NEBRASKA		09/22/87	07:25	09/22/87	07:28
019	F	W	FIELD BLANK	GERING	NEBRASKA		09/23/87	09:27	09/23/87	09:33
020	F	W	EQUIPMENT BLANK	GERING	NEBRASKA		09/22/87	12:30	09/22/87	:
021	F	W	LOCKWOOD CORPORATION	GERING	NEBRASKA		09/21/87	23:00	/ /	:

TABLE OF CODES

SAMP. NO. = SAMPLE IDENTIFICATION NUMBER
QCC = QUALITY CONTROL SAMPLE/AUDIT CODE
M = MEDIA OF SAMPLE (A=AIR, T=TISSUE, H=HAZARDOUS MATERIAL, S=SEDIMENT/SOIL, W=WATER)
STORET/SAROAD LOC. NO. = A SAMPLING SITE LOCATION IDENTIFICATION NUMBER
BEG. DATE = THE DATE SAMPLING WAS STARTED
BEG. TIME = THE TIME SAMPLING WAS STARTED
END. DATE = THE DATE SAMPLING WAS ENDED
END. TIME = THE TIME SAMPLING WAS STOPPED

A = RESERVED
B = RESERVED
PES = PESTICIDES BY CONTRACT
= DIOXINS/FURANS BY EPA
E = EXPLOSIVES BY CONTRACT
FLD = FIELD MEASUREMENTS BY EPA
G = MINERALS & DISSOLVED MATERIALS BY EPA
HER = HERBICIDES BY EPA
I = ION CHROMATOGRAPHY ANALYSES BY EPA
MC = METALS BY CONTRACT
BNC = BASE NEUTRALS BY CONTRACT
L = FISH PHYSICAL DATA BY EPA
MET = METALS BY EPA
N = FISH TISSUE PARAMETERS BY EPA
VC = VOLATILES BY CONTRACT
P = PESTICIDES BY EPA
Q = FLASH POINT ANALYSES BY EPA
R = RESERVED
BN = SEMIVOLATILE BY EPA
T = CYANIDE PHENOL BY EPA
U = RESERVED
VOA = VOLATILE ORGANICS BY EPA
HC = HERBICIDES BY CONTRACT
X = RESERVED
Y = RESERVED
TRK = ACTIVITY TRACKING PARAMETERS BY EPA

DATA QUALITY CODES
BLANK = NO REMARKS
J = DATA REPORTED BUT NOT VALID BY APPROVED QC PROCEDURES
I = INVALID SAMPLE/DATA - VALUE NOT REPORTED
U = LESS THAN (MEASUREMENT DETECTION LIMIT)
M = DETECTED BUT BELOW THE LEVEL FOR ACCURATE QUANTIFICATION

CONTRACTOR/ IN HOUSE / FIELD MEDIA GROUPS
FIELD = * * * = AF,WF,ZZ
CONTRACTOR = * * = HC,HJ,HK,HO,SC,SJ,SK,SC,SW,TC,TJ, TK,TO,TW,WA,WC,WE,WJ,WK,WO,WW
IN HOUSE = * = ALL OTHERS

QUALITY CONTROL AUDIT CODES
A = TRUE VALUE FOR CALIBRATION STANDARD
B = CONCENTRATION RESULTING FROM DUPLICATE LAB SPIKE
C = MEASURED VALUE FOR CALIBRATION STANDARD
D = MEASURED VALUE FOR FIELD DUPLICATE
F = MEASURED VALUE FOR FIELD BLANK
G = MEASURED VALUE FOR METHOD STANDARD
H = TRUE VALUE FOR METHOD STANDARD
K = CONCENTRATION RESULTING FROM DUPLICATE FIELD SPIKE
L = MEASURED VALUE FOR LAB DUPLICATE
M = MEASURED VALUE FOR LAB BLANK
N = MEASURED VALUE FOR DUPLICATE FIELD SPIKE
P = MEASURED VALUE FOR PERFORMANCE STANDARD
R = CONCENTRATION RESULTING FROM LAB SPIKE
S = MEASURED VALUE FOR LAB SPIKE
T = TRUE VALUE OF PERFORMANCE STANDARD
W = MEASURED VALUE FOR DUPLICATE LAB SPIKE
Y = MEASURED VALUE FOR FIELD SPIKE
Z = CONCENTRATION RESULTING FROM FIELD SPIKE

MEDIA CODES
A = AIR
T = BIOLOGICAL (PLANT & ANIMAL) TISSUE
H = HAZARDOUS MATERIALS/MAN MADE PRODUCTS
S = SEDIMENT, SLUDGE & SOIL
W = WATER

UNITS
NA = NOT APPLICABLE
PG = PICOGRAMS (1 X 10-12 GRAMS)
NG = NANOGRAMS (1 X 10-9 GRAMS)
UG = MICROGRAMS (1 X 10-6 GRAMS)
MG = MILLIGRAMS (1 X 10-3 GRAMS)
M3 = METER CUBED
MPH = MILES PER HOUR
SCM = STANDARD (1 ATM, 25 C) CUBIC METER
KG = KILOGRAM
L = LITER
C = CENTIGRADE DEGREES
SU = STANDARD (PH) UNITS
# = NUMBER
LB = POUNDS
IN = INCHES
M/F = MALE/FEMALE
M2 = SQUARE METER
I.D. = SPECIES IDENTIFICATION
GPM = GALLONS PER MINUTE
CFS = CUBIC FEET PER SECOND
MGD = MILLION GALLONS PER DAY
1000G= FLOW, 1000 GALLONS PER COMPOSITE
UMHOS= CONDUCTIVITY UNITS (1/OHMS)
NTU = TURBIDITY UNITS
PC/L = PICO (1 X 10-12) CURRIES PER LITER
MV = MILLIVOLT
SQ FT= SQUARE FEET
P/CM2= PICOGRAMS PER SQ. CENTIMETER
U/CM2= MICROGRAMS PER SQ. CENTIMETER

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	001		002		003		004		005		006	
SK04 2-CHLOROPHENOL	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK05 1,3-DICHLOROBENZENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK06 1,4-DICHLOROBENZENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK07 BENZYL ALCOHOL	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK08 1,2-DICHLOROBENZENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK09 2-METHYLPHENOL (O-CRESOL)	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK10 BIS(2-CHLOROISOPROPYL) ETHER	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK11 4-METHYLPHENOL (M-CRESOL)	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK12 N-NITROSO-DIPROPYLAMINE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK13 HEXACHLOROETHANE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK14 NITROBENZENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK15 ISOPHORONE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK16 2-NITROPHENOL	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK17 2,4-DIMETHYLPHENOL	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK18 BENZOIC ACID	UG/KG	240000	U	110000	U	3700	U	3500	U	3900	U	120000	U
SK19 BIS(2-CHLOROETHYOXY) METHANE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK20 2,4-DICHLOROPHENOL	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK21 1,2,4-TRICHLOROBENZENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK22 NAPHTHALENE	UG/KG	540000		7300		750	U	720	U	810	U	25000	U
SK23 4-CHLOROANILINE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK24 HEXACHLOROBUTADIENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK25 4-CHLORO-3-METHYLPHENOL	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK26 2-METHYLNAPHTHALENE	UG/KG	110000		4800		750	U	720	U	810	U	25000	U
SK27 HEXACHLOROCYCLOPENTADIENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK28 2,4,6-TRICHLOROPHENOL	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK29 2,4,5-TRICHLOROPHENOL	UG/KG	240000	U	110000	U	3700	U	3500	U	3900	U	120000	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	001		002		003		004		005		006	
SK30 2-CHLORONAPHTHALENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK31 2-NITROANILINE	UG/KG	240000	U	110000	U	3700	U	3500	U	3900	U	120000	U
SK32 DIMETHYLPHTHALATE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK33 ACENAPHTHYLENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK34 3-NITROANILINE	UG/KG	240000	U	110000	U	3700	U	3500	U	3900	U	120000	U
SK35 ACENAPHTHENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK36 2,4-DINITROPHENOL	UG/KG	240000	U	110000	U	3700	U	3500	U	3900	U	120000	U
SK37 4-NITROPHENOL	UG/KG	240000	U	110000	U	3700	U	3500	U	3900	U	120000	U
SK38 DIBENZOFURAN	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK39 2,4-DINITROTOLUENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK40 2,6-DINITROTOULENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK41 DIETHYLPHTHALATE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK42 4-CHLOROPHENYL PHENYL ETHER	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK43 FLOURENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK44 4-NITROANILINE	UG/KG	240000	U	110000	U	3700	U	3500	U	3900	U	120000	U
SK45 4,6-DINITRO-2-METHYLPHENOL	UG/KG	240000	U	110000	U	3700	U	3500	U	3900	U	120000	U
SK46 N-NITROSODIPHENYLAMINE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK47 4-BROMOPHENYL PHENYL ETHER	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK48 HEXACHLOROBENZENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK49 PENTACHLOROPHENOL	UG/KG	240000	U	110000	U	3700	U	3500	U	3900	U	120000	U
SK50 PHENANTHRENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK51 ANTHRACENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK52 DI-N-BUTYL PHTHALATE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK53 FLUORANTHENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK54 PYRENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK55 BUTYL BENZYL PHTHALATE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	001		002		003		004		005		006	
SK56 3,3'-DICHLOROBENZIDINE	UG/KG	99000	U	45000	U	1500	U	1400	U	1600	U	50000	U
SK57 BENZO(A)ANTHRACENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK58 BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	50000	U	23000	U	750	U	2100		810	U	25000	U
SK59 CHRYSENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK60 DI-N-OCTYL PHTHALATE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK61 BENZO(B)FLUORANTHENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK62 BENZO(K)FLUORANTHENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK63 BENZO(A)PYRENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK64 INDENO(1,2,3-CD)PYRENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK65 DIBENZO(A,H)ANTHRACENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
SK66 BENZO(G,H,I)PERYLENE	UG/KG	50000	U	23000	U	750	U	720	U	810	U	25000	U
ZZ01 SAMPLE NUMBER	NA	001		002		003		004		005		006	
ZZ02 ACTIVITY CODE	NA	ADV02		ADV02		ADV02		ADV02		ADV02		ADV02	

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	007		008		009		010		011		011D	
SK04 2-CHLOROPHENOL	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK05 1,3-DICHLOROBENZENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK06 1,4-DICHLOROBENZENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK07 BENZYL ALCOHOL	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK08 1,2-DICHLOROBENZENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK09 2-METHYLPHENOL (O-CRESOL)	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK10 BIS(2-CHLOROISOPROPYL) ETHER	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK11 4-METHYLPHENOL (M-CRESOL)	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK12 N-NITROSO-DIPROPYLAMINE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK13 HEXACHLOROETHANE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK14 NITROBENZENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK15 ISOPHORONE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK16 2-NITROPHENOL	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK17 2,4-DIMETHYLPHENOL	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK18 BENZOIC ACID	UG/KG	120000	U	110000	U	4000	U	4200	U	100000	U	110000	U
SK19 BIS(2-CHLOROETHYOXY) METHANE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK20 2,4-DICHLOROPHENOL	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK21 1,2,4-TRICHLOROBENZENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK22 NAPHTHALENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK23 4-CHLOROANILINE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK24 HEXACHLOROBUTADIENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK25 4-CHLORO-3-METHYLPHENOL	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK26 2-METHYLNAPHTHALENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK27 HEXACHLOROCYCLOPENTADIENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK28 2,4,6-TRICHLOROPHENOL	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK29 2,4,5-TRICHLOROPHENOL	UG/KG	120000	U	110000	U	4000	U	4200	U	100000	U	110000	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	007		008		009		010		011		011D	
SK30 2-CHLORONAPHTHALENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK31 2-NITROANILINE	UG/KG	120000	U	110000	U	4000	U	4200	U	100000	U	110000	U
SK32 DIMETHYLPHTHALATE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK33 ACENAPHTHYLENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK34 3-NITROANILINE	UG/KG	120000	U	110000	U	4000	U	4200	U	100000	U	110000	U
SK35 ACENAPHTHENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK36 2,4-DINITROPHENOL	UG/KG	120000	U	110000	U	4000	U	4200	U	100000	U	110000	U
SK37 4-NITROPHENOL	UG/KG	120000	U	110000	U	4000	U	4200	U	100000	U	110000	U
SK38 DIBENZOFURAN	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK39 2,4-DINITROTOLUENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK40 2,6-DINITROTOULENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK41 DIETHYLPHTHALATE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK42 4-CHLOROPHENYL PHENYL ETHER	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK43 FLOURENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK44 4-NITROANILINE	UG/KG	120000	U	110000	U	4000	U	4200	U	100000	U	110000	U
SK45 4,6-DINITRO-2-METHYLPHENOL	UG/KG	120000	U	110000	U	4000	U	4200	U	100000	U	110000	U
SK46 N-NITROSODIPHENYLAMINE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK47 4-BROMOPHENYL PHENYL ETHER	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK48 HEXACHLOROBENZENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK49 PENTACHLOROPHENOL	UG/KG	120000	U	110000	U	4000	U	4200	U	100000	U	110000	U
SK50 PHENANTHRENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK51 ANTHRACENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK52 DI-N-BUTYL PHTHALATE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK53 FLUORANTHENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK54 PYRENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK55 BUTYL BENZYL PHTHALATE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	007		008		009		010		011		011D	
SK56 3,3'-DICHLOROBENZIDINE	UG/KG	50000	U	45000	U	1700	U	1700	U	41000	U	45000	U
SK57 BENZO(A)ANTHRACENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK58 BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK59 CHRYSENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK60 DI-N-OCTYL PHTHALATE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK61 BENZO(B)FLUORANTHENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK62 BENZO(K)FLUORANTHENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK63 BENZO(A)PYRENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK64 INDENO(1,2,3-CD)PYRENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK65 DIBENZO(A,H)ANTHRACENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK66 BENZO(G,H,I)PERYLENE	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
ZZ01 SAMPLE NUMBER	NA	007		008		009		010		011		011	
ZZ02 ACTIVITY CODE	NA	ADV02		ADV02		ADV02		ADV02		ADV02		ADV02	

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	001	002	003	004	005	006
SJ01 SILVER	MG/KG	2.6 U	1.7 M	2.2 U	2.1 U	2.3 U	2.5 U
SJ02 ALUMINUM	MG/KG	8200	4700	4800	2500	11000	12000
SJ03 ARSENIC	MG/KG	15	26	42	4.7	23 U	25 U
SJ04 BARIUM	MG/KG	220	130	130	109	230	320
SJ05 BERYLLIUM	MG/KG	1.3 U	1.1 U	1.1 U	1.1 U	1.2 U	1.3 U
SJ06 CADMIUM	MG/KG	1.3 M	2.3	1.0 M	5.1	1.8	1.8
SJ07 COBALT	MG/KG	4.8 M	3.4 M	2.4 M	1.9 M	4.4 M	5.2 M
SJ08 CHROMIUM	MG/KG	76	35	43	17	11	12
SJ09 COPPER	MG/KG	12	14	18	14	12	16
SJ10 IRON	MG/KG	8200	6600	4800	8800	11000	12000
SJ11 MANGANESE	MG/KG	270 J	230 J	160 J	210 J	290 J	470 J
SJ12 NICKEL	MG/KG	6.8 M	6.7 M	5.0 M	13	8.1 M	10 M
SJ13 LEAD	MG/KG	306 J	204 J	600 J	600 J	12 J	19 J
SJ14 ANTIMONY	MG/KG	16 U	14 U	13 U	13 U	14 U	15 U
SJ15 SELENIUM	MG/KG	1.3 U	1.1 U	1.1 U	1.1 U	1.2 U	1.3 U
SJ16 THALLIUM	MG/KG	2.6 U	2.3 U	2.2 U	2.1 U	2.3 U	2.5 U
SJ17 VANADIUM	MG/KG	20	17	11 M	9.8 M	27	27
SJ18 ZINC	MG/KG	74	300	81	15000	52	77
SJ19 CALCIUM	MG/KG	25000	23000	16000	9900	26000	31000
SJ20 MAGNESIUM	MG/KG	5800	2400	2700	1300	6200	7200
SJ21 SODIUM	MG/KG	720 M	280 M	290 M	600	460 M	520 M
SJ22 POTASSIUM	MG/KG	2800	1600	2000	521 M	240 M	3200
SJ23 TIN	MG/KG	N/A	N/A	N/A	N/A	N/A	N/A
SJ24 MERCURY	MG/KG	0.13 U	0.11 U	0.11 U	0.11 U	0.12 U	0.13 U
SK01 PHENOL	UG/KG	50000 U	23000 U	750 U	720 U	810 U	25000 U
SK03 BIS(2-CHLOROETHYL) ETHER	UG/KG	50000 U	23000 U	750 U	720 U	810 U	25000 U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	007		008		009		010		011		011D	
SJ01 SILVER	MG/KG	2.5	U	2.3	U	2.3	U	2.5	U	2.1	U	2.1	U
SJ02 ALUMINUM	MG/KG	8600		4800	U	6400		9900		1700		1500	
SJ03 ARSENIC	MG/KG	25	U	23	U	54		25	U	11		21	U
SJ04 BARIUM	MG/KG	270		200		290		250		140		100	
SJ05 BERYLLIUM	MG/KG	1.2	U	1.1	U	1.2	U	1.2	U	1.1	U	1.1	U
SJ06 CADMIUM	MG/KG	1.3		1.4		1.6		2.0		21		19	
SJ07 COBALT	MG/KG	4.4	M	3.0	M	2.7	M	4.8	M	14		12	
SJ08 CHROMIUM	MG/KG	12		6.5		11		11		260		230	
SJ09 COPPER	MG/KG	13		8.5		10		15		610		580	
SJ10 IRON	MG/KG	8900		4900		6400		9300		160000		140000	
SJ11 MANGANESE	MG/KG	390	J	310	J	320	J	370	J	150	J	1600	J
SJ12 NICKEL	MG/KG	5.7	M	4.3	M	5.3	M	9.0	M	18		150	
SJ13 LEAD	MG/KG	40	J	11	J	26	J	20	J	27	J	210	J
SJ14 ANTIMONY	MG/KG	15	U	14	U	14	U	15	U	13	U	13	U
SJ15 SELENIUM	MG/KG	1.2	U	1.1	U	1.2	U	1.2	U	1.1	U	1.1	U
SJ16 THALLIUM	MG/KG	2.5	U	2.3	U	2.3	U	2.5	U	2.1	U	2.1	U
SJ17 VANADIUM	MG/KG	19		14		19		20		4.3	M	35	
SJ18 ZINC	MG/KG	250		150		80		94		99		750	
SJ19 CALCIUM	MG/KG	30000		20000		33000		26000		8600		13000	
SJ20 MAGNESIUM	MG/KG	5000		2800		3700		5900		240	M	5800	
SJ21 SODIUM	MG/KG	410	M	380	M	320	M	410	M	1060	U	440	M
SJ22 POTASSIUM	MG/KG	3300		2100		2600		4100		1100		930	M
SJ23 TIN	MG/KG	N/A		N/A		N/A		N/A		N/A		N/A	
SJ24 MERCURY	MG/KG	0.12	U	0.11	U	0.12	U	0.12	U	0.11	U	.11	U
SK01 PHENOL	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U
SK03 BIS(2-CHLOROETHYL) ETHER	UG/KG	25000	U	23000	U	830	U	870	U	21000	U	23000	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	012		013	014	014D	015	016
SJ01 SILVER	MG/KG	2.4	U					
SJ02 ALUMINUM	MG/KG	11000						
SJ03 ARSENIC	MG/KG	24	U					
SJ04 BARIUM	MG/KG	180						
SJ05 BERYLLIUM	MG/KG	1.2	U					
SJ06 CADMIUM	MG/KG	10						
SJ07 COBALT	MG/KG	7.0	M					
SJ08 CHROMIUM	MG/KG	62						
SJ09 COPPER	MG/KG	160						
SJ10 IRON	MG/KG	55000						
SJ11 MANGANESE	MG/KG	590	J					
SJ12 NICKEL	MG/KG	55						
SJ13 LEAD	MG/KG	44	J					
SJ14 ANTIMONY	MG/KG	14	U					
SJ15 SELENIUM	MG/KG	1.2	U					
SJ16 THALLIUM	MG/KG	2.4	U					
SJ17 VANADIUM	MG/KG	36						
SJ18 ZINC	MG/KG	130						
SJ19 CALCIUM	MG/KG	20000						
SJ20 MAGNESIUM	MG/KG	5000						
SJ21 SODIUM	MG/KG	930	M					
SJ22 POTASSIUM	MG/KG	2800						
SJ23 TIN	MG/KG	N/A						
SJ24 MERCURY	MG/KG	0.12	U					
SK01 PHENOL	UG/KG	850	U					
SK03 BIS(2-CHLOROETHYL) ETHER	UG/KG	850	U					

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	012		013	014	014D	015	016
SK04 2-CHLOROPHENOL	UG/KG	850	U					
SK05 1,3-DICHLOROBENZENE	UG/KG	850	U					
SK06 1,4-DICHLOROBENZENE	UG/KG	850	U					
SK07 BENZYL ALCOHOL	UG/KG	850	U					
SK08 1,2-DICHLOROBENZENE	UG/KG	850	U					
SK09 2-METHYLPHENOL (O-CRESOL)	UG/KG	850	U					
SK10 BIS(2-CHLOROISOPROPYL) ETHER	UG/KG	850	U					
SK11 4-METHYLPHENOL (M-CRESOL)	UG/KG	850	U					
SK12 N-NITROSO-DIPROPYLAMINE	UG/KG	350	U					
SK13 HEXACHLOROETHANE	UG/KG	850	U					
SK14 NITROBENZENE	UG/KG	850	U					
SK15 ISOPHORONE	UG/KG	850	U					
SK16 2-NITROPHENOL	UG/KG	850	U					
SK17 2,4-DIMETHYLPHENOL	UG/KG	850	U					
SK18 BENZOIC ACID	UG/KG	4100	U					
SK19 BIS(2-CHLOROETHOXY) METHANE	UG/KG	350	U					
SK20 2,4-DICHLOROPHENOL	UG/KG	850	U					
SK21 1,2,4-TRICHLOROBENZENE	UG/KG	850	U					
SK22 NAPHTHALENE	UG/KG	350	U					
SK23 4-CHLOROANILINE	UG/KG	350	U					
SK24 HEXACHLOROBUTADIENE	UG/KG	950	U					
SK25 4-CHLORO-3-METHYLPHENOL	UG/KG	850	U					
SK26 2-METHYLNAPHTHALENE	UG/KG	850	U					
SK27 HEXACHLOROCYCLOPENTADIENE	UG/KG	850	U					
SK28 2,4,6-TRICHLOROPHENOL	UG/KG	350	U					
SK29 2,4,5-TRICHLOROPHENOL	UG/KG	4100	U					

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	012		013	014	014D	015	016
SK30 2-CHLORONAPHTHALENE	UG/KG	850	U					
SK31 2-NITROANILINE	UG/KG	4100	U					
SK32 DIMETHYLPHTHALATE	UG/KG	850	U					
SK33 ACENAPHTHYLENE	UG/KG	850	U					
SK34 3-NITROANILINE	UG/KG	4100	U					
SK35 ACENAPHTHENE	UG/KG	850	U					
SK36 2,4-DINITROPHENOL	UG/KG	4100	U					
SK37 4-NITROPHENOL	UG/KG	4100	U					
SK38 DIBENZOFURAN	UG/KG	850	U					
SK39 2,4-DINITROTOLUENE	UG/KG	850	U					
SK40 2,6-DINITROTOULENE	UG/KG	850	U					
SK41 DIETHYLPHTHALATE	UG/KG	850	U					
SK42 4-CHLOROPHENYL PHENYL ETHER	UG/KG	850	U					
SK43 FLOURENE	UG/KG	850	U					
SK44 4-NITROANILINE	UG/KG	4100	U					
SK45 4,6-DINITRO-2-METHYLPHENOL	UG/KG	4100	U					
SK46 N-NITROSODIPHENYLAMINE	UG/KG	850	U					
SK47 4-BROMOPHENYL PHENYL ETHER	UG/KG	850	U					
SK48 HEXACHLOROBENZENE	UG/KG	850	U					
SK49 PENTACHLOROPHENOL	UG/KG	4100	U					
SK50 PHENANTHRENE	UG/KG	850	U					
SK51 ANTHRACENE	UG/KG	850	U					
SK52 DI-N-BUTYL PHTHALATE	UG/KG	850	U					
SK53 FLUORANTHENE	UG/KG	850	U					
SK54 PYRENE	UG/KG	850	U					
SK55 BUTYL BENZYL PHTHALATE	UG/KG	850	U					

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	012		013		014		0140		015		016	
		Soil											
SK56 3,3'-DICHLOROBENZIDINE	UG/KG	1700	U										
SK57 BENZO(A)ANTHRACENE	UG/KG	850	U										
SK58 BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	490	M										
SK59 CHRYSENE	UG/KG	850	U										
SK60 DI-N-OCTYL PHTHALATE	UG/KG	850	U										
SK61 BENZO(B)FLUORANTHENE	UG/KG	850	U										
SK62 BENZO(K)FLUORANTHENE	UG/KG	850	U										
SK63 BENZO(A)PYRENE	UG/KG	850	U										
SK64 INDENO(1,2,3-CD)PYRENE	UG/KG	850	U										
SK65 DIBENZO(A,H)ANTHRACENE	UG/KG	850	U										
SK66 BENZO(G,H,I)PERYLENE	UG/KG	850	U										
WJ01 SILVER, TOTAL	UG/L			10	U	10	U	10	U	10	U	10	U
WJ02 ALUMINUM, TOTAL	UG/L			200	U	200	U	200	U	300	U	200	U
WJ03 ARSENIC, TOTAL	UG/L			10	U	100	U	100	U	100	U	21	
WJ04 BARIUM, TOTAL	UG/L			35	M	200	U	200	U	40	M	75	M
WJ05 BERYLLIUM, TOTAL	UG/L			5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
WJ06 CADMIUM, TOTAL	UG/L			5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
WJ07 COBALT, TOTAL	UG/L			12	M	26	M	31	M	50	U	50	U
WJ08 CHROMUIM, TOTAL	UG/L			10	U	10	U	10	U	10	U	10	U
WJ09 COPPER, TOTAL	UG/L			25	U	25	U	25	U	25	U	25	U
WJ10 IRON, TOTAL	UG/L			12000		9200		13000		280		120	
WJ11 MANGANESE, TOTAL	UG/L			2900		3000		4200		34		15	U
WJ12 NICKEL, TOTAL	UG/L			40	U	110		160		40	U	40	U
WJ13 LEAD, TOTAL	UG/L			5.0	U	50	U	50	U	5.0	U	6.3	U
WJ14 ANTIMONY, TOTAL	UG/L			60	U	60	U	60	U	60	U	60	U
WJ15 SELENIUM, TOTAL	UG/L			I	I	I	I	I	I	I	I	14	J

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	012	013		C14		014D		015		016	
WJ16 THALLIUM, TOTAL	UG/L		10	U	10	U	10	U	10	U	10	U
WJ17 VANADIUM, TOTAL	UG/L		50	U	50	U	50	U	50	U	50	U
WJ18 ZINC, TOTAL	UG/L		530		780		1100		21		28	
WJ19 CALCIUM, TOTAL	UG/L		360000		200000		340000		68000		40000	
WJ20 MAGNESIUM, TOTAL	UG/L		34000		98000		140000		24000		18000	
WJ21 SODIUM, TOTAL	UG/L		120000		190000		250000		170000		230000	
WJ22 POTASSIUM, TOTAL	UG/L		22000		43000		45000		16000		13000	
WJ23 TIN, TOTAL	UG/L		N/A		N/A		N/A		N/A		N/A	
WJ24 MERCURY, TOTAL	UG/L		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
WJ25 CYANIDE, TOTAL	UG/L		10	U	14	J	10	J	10	U	14	J
WJ26 SILVER, DISSOLVED	UG/L		10	U	10	U	10	U	10	U	10	U
WJ27 ALUMINUM, DISSOLVED	UG/L		200	U	200	U	200	U	200	U	200	U
WJ28 ARSENIC, DISSOLVED	UG/L		10	U	10	U	10	U	20		20	
WJ29 BARIUM, DISSOLVED	UG/L		29	M	200	U	200	U	28	M	32	M
WJ30 BERYLLIUM, DISSOLVED	UG/L		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
WJ31 CADMIUM, DISSOLVED	UG/L		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
WJ32 COBALT, DISSOLVED	UG/L		9.0	M	30	M	32	M	50	U	50	U
WJ33 CHROMIUM, DSSOLVED	UG/L		10	U	10	U	10	U	10	U	10	U
WJ34 COPPER, DISSOLVED	UG/L		25	U	25	U	25	U	25	U	25	U
WJ35 IRON, DISSOLVED	UG/L		9800		11000		11000		110		100	U
WJ36 MANGANESE, DISSOLVED	UG/L		2600		4000		3900		15	U	15	U
WJ37 NICKEL, DISSOLVED	UG/L		40	U	150		140		40	U	40	U
WJ38 LEAD, DISSOLVED	UG/L		5.0	U	50	U	100	U	5.0	U	5.0	U
WJ39 ANTIMONY, DISSOLVED	UG/L		60	U	60	U	60	U	60	U	60	U
WJ40 SELENIUM, DISSOLVED	UG/L		I	I	I	I	I	I	5.0	U	5.0	U
WJ41 THALLIUM, DISSOLVED	UG/L		10	U	10	U	10	U	10	U	10	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	012	013	014	014D	015	016
WJ42 VANADIUM, DISSOLVED	UG/L		50 U	50 U	50 U	50 U	50 U
WJ43 ZINC, DISSOLVED	UG/L		470	1000	990	20 U	20 U
WJ44 CALCIUM, DISSOLVED	UG/L		320000	310000	310000	56000	19000
WJ45 MAGNESIUM, DISSOLVED	UG/L		31000	130000	130000	21000	8200
WJ46 SODIUM, DISSOLVED	UG/L		110000	240000	240000	150000	110000
WJ47 POTASSIUM, DISSOLVED	UG/L		13000	15000	50000	8900	6700
WJ48 TIN, DISSOLVED	UG/L		N/A	N/A	N/A	N/A	N/A
WJ49 MERCURY, DISSOLVED	UG/L		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
W001 CHLOROMETHANE	UG/L		10 U	10 U	10 U	10 U	10 U
W002 BROMOMETHANE	UG/L		10 U	10 U	10 U	10 U	10 U
W003 VINYL CHLORIDE	UG/L		10 U	10 U	10 U	10 U	10 U
W004 CHLOROETHANE	UG/L		10 U	10 U	10 U	10 U	10 U
W005 METHYLENE CHLORIDE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W006 1,1-DICHLOROETHYLENE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W007 1,1-DICHLOROETHANE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W008 1,2-DICHLOROETHENE (TOTAL)	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W009 CHLOROFORM	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W010 1,2-DICHLOROETHANE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W011 1,1,1-TRICHLOROETHANE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W012 CARBON TETRACHLORIDE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W013 BROMODICHLOROMETHANE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W014 1,2-DICHLOROPROPANE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W015 BENZENE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W016 1,3-DICHLOROPROPENE TOTAL	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W017 TRICHLOROETHYLENE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W018 CIS-1,3-DICHLOROPROPENE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	012	013	014	014D	015	016
W019 DIBROMOCHLOROMETHANE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W020 1,1,2-TRICHLOROETHANE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W021 2-CHLOROETHYLVINYL ETHER	UG/L		10 U	10 U	10 U	10 U	10 U
W022 BROMOFORM	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W023 1,1,2,2-TETRACHLOROETHENE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W024 TOLUENE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W025 1,1,2,2-TETRACHLOROETHANE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W026 CHLOROBENZENE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W027 ETHYL BENZENE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W028 ACETONE	UG/L		10 U	10 U	10 U	10 U	10 U
W029 CARBON DISULFIDE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W030 2-BUTANONE	UG/L		I I	I I	I I	I I	I I
W031 VINYL ACETATE	UG/L		10 U	10 U	10 U	10 U	10 U
W032 2-HEXANONE	UG/L		10 U	10 U	10 U	10 U	10 U
W033 4-METHYL-2-PENTANONE	UG/L		10 U	10 U	10 U	10 U	10 U
W034 STYRENE	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
W035 XYLENES, TOTAL	UG/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
WT12 SULFATE AS SO4	MG/L		1480	2500	2720	270	250
ZZ01 SAMPLE NUMBER	NA	012	013	014	014	015	016
ZZ02 ACTIVITY CODE	NA	ADV02	ADV02	ADV02	ADV02	ADV02	ADV02

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-A0V02

COMPOUND	UNITS	016C		017		018		019F		020F		021F	
WJ01 SILVER, TOTAL	UG/L	10	U	10	U	10	U	10	U	10	U		
WJ02 ALUMINUM, TOTAL	UG/L	200	U	200	U	200	U	180	M	200	U		
WJ03 ARSENIC, TOTAL	UG/L	14		14		20		10	U	10	U		
WJ04 BARIUM, TOTAL	UG/L	75	M	67	M	50	M	200	U	200	U		
WJ05 BERYLLIUM, TOTAL	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U		
WJ06 CADMIUM, TOTAL	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U		
WJ07 COBALT, TOTAL	UG/L	50	U	50	U	50	U	50	U	50	U		
WJ08 CHROMIUM, TOTAL	UG/L	10	U	10	U	10	U	10	U	10	U		
WJ09 COPPER, TOTAL	UG/L	25	U	140		25	U	25	U	25	U		
WJ10 IRON, TOTAL	UG/L	140		140		170		100	U	100	U		
WJ11 MANGANESE, TOTAL	UG/L	15	U	15	U	15	U	15	U	15	U		
WJ12 NICKEL, TOTAL	UG/L	40	U	40	U	40	U	13	M	40	U		
WJ13 LEAD, TOTAL	UG/L	5.0	U	5.0	U	13	U	3.4	M	3.9	M		
WJ14 ANTIMONY, TOTAL	UG/L	60	U	60	U	60	U	60	U	60	U		
WJ15 SELENIUM, TOTAL	UG/L	12	J	10	J	9.1	J	I	I	I	I		
WJ16 THALLIUM, TOTAL	UG/L	10	U	10	U	10	U	10	U	10	U		
WJ17 VANADIUM, TOTAL	UG/L	50	U	50	U	50	U	15	M	50	U		
WJ18 ZINC, TOTAL	UG/L	26		550		24		20	U	20	U		
WJ19 CALCIUM, TOTAL	UG/L	42000		72000		90000		5000	U	5000	U		
WJ20 MAGNESIUM, TOTAL	UG/L	19000		27000		39000		5000	U	5000	U		
WJ21 SODIUM, TOTAL	UG/L	240000		2500000		230000		5000	U	5000	U		
WJ22 POTASSIUM, TOTAL	UG/L	13000		6800		20000		5000	U	5000	U		
WJ23 TIN, TOTAL	UG/L	N/A		N/A		N/A		N/A		N/A			
WJ24 MERCURY, TOTAL	UG/L	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		
WJ25 CYANIDE, TOTAL	UG/L	10	U	10	U	10	U	10	U	10	U		
WJ26 SILVER, DISSOLVED	UG/L	7.3	M	10	U	10	U	10	U	10	U		

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADVC2

COMPOUND	UNITS	016D		017		C18		C19F		020F		021F	
WJ27 ALUMINUM, DISSOLVED	UG/L	200	U	200	U	200	U	200	U	200	U		
WJ28 ARSENIC, DISSOLVED	UG/L	18		14		19		10	U	10	U		
WJ29 BARIUM, DISSOLVED	UG/L	75	M	51	M	41	M	200	U	200	U		
WJ30 BERYLLIUM, DISSOLVED	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U		
WJ31 CADMIUM, DISSOLVED	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U		
WJ32 COBALT, DISSOLVED	UG/L	50	U	50	U	50	U	50	U	50	U		
WJ33 CHROMIUM, DSSOLVED	UG/L	10	U	10	U	10	U	10	U	10	U		
WJ34 COPPER, DISSOLVED	UG/L	25	U	110		25	U	25	U	25	U		
WJ35 IRON, DISSOLVED	UG/L	100	U	100	U	100	U	100	U	100	U		
WJ36 MANGANESE, DISSOLVED	UG/L	15	U	15	U	15	U	15	U	15	U		
WJ37 NICKEL, DISSOLVED	UG/L	40	U	40	U	40	U	40	U	40	U		
WJ38 LEAD, DISSOLVED	UG/L	5.0	U	5.5	U	5.0	U	5.0	U	5.0	U		
WJ39 ANTIMONY, DISSOLVED	UG/L	60	U	60	U	60	U	60	U	60	U		
WJ40 SELENIUM, DISSOLVED	UG/L	5.0	U	I	I	5.0	J	I	I	I	I		
WJ41 THALLIUM, DISSOLVED	UG/L	10	U	10	U	10	U	10	U	10	U		
WJ42 VANADIUM, DISSOLVED	UG/L	50	U	50	U	50	U	50	U	50	U		
WJ43 ZINC, DISSOLVED	UG/L	20	U	440		21		20	U	20	U		
WJ44 CALCIUM, DISSOLVED	UG/L	41000		59000		73000		5000	U	5000	U		
WJ45 MAGNESIUM, DISSOLVED	UG/L	18000		23000		32000		5000	U	5000	U		
WJ46 SODIUM, DISSOLVED	UG/L	240000		220000		200000		5000	U	5000	U		
WJ47 POTASSIUM, DISSOLVED	UG/L	13000		11000		14000		5000	U	5000	U		
WJ48 TIN, DISSOLVED	UG/L	N/A		N/A		N/A		N/A		N/A			
WJ49 MERCURY, DISSOLVED	UG/L	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		
W001 CHLOROMETHANE	UG/L	10	U	10	U	10	U	10	U	10	U	10	U
W002 BROMOMETHANE	UG/L	10	U	10	U	10	U	10	U	10	U	10	U
W003 VINYL CHLORIDE	UG/L	10	U	10	U	10	U	10	U	10	U	10	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	016D		017		013		019F		020F		021F	
W004 CHLOROETHANE	UG/L	10	U	10	U	10	U	10	U	10	U	10	U
W005 METHYLENE CHLORIDE	UG/L	5.0	U	5.0	U	5.0	U	3.0	M	14	J	16	J
W006 1,1-DICHLOROETHYLENE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W007 1,1-DICHLOROETHANE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W009 1,2-DICHLOROETHENE (TOTAL)	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W009 CHLOROFORM	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W010 1,2-DICHLOROETHANE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W011 1,1,1-TRICHLOROETHANE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W012 CARBON TETRACHLORIDE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W013 BROMODICHLOROMETHANE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W014 1,2-DICHLOROPROPANE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W015 BENZENE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W016 1,3-DICHLOROPROPENE TOTAL	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W017 TRICHLOROETHYLENE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W018 CIS-1,3-DICHLOROPROPENE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W019 DIBROMOCHLOROMETHANE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W020 1,1,2-TRICHLOROETHANE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W021 2-CHLOROETHYLVINYL ETHER	UG/L	10	U	10	U	10	U	10	U	10	U	10	U
W022 BROMOFORM	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W023 1,1,2,2-TETRACHLOROETHENE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W024 TOLUENE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W025 1,1,2,2-TETRACHLOROETHANE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W026 CHLOROBENZENE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W027 ETHYL BENZENE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W028 ACETONE	UG/L	10	U	10	U	10	U	10	U	10	U	10	U
W029 CARBON DISULFIDE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADV02

COMPOUND	UNITS	016D		017		018		019F		020F		021F	
W030 2-BUTANONE	UG/L	I	I	I	I	I	I	I	I	I	I	I	I
W031 VINYL ACETATE	UG/L	10	U	10	U	10	U	10	U	10	U	10	U
W032 2-HEXANONE	UG/L	10	U	10	U	10	U	10	U	10	U	10	U
W033 4-METHYL-2-PENTANONE	UG/L	10	U	10	U	10	U	10	U	10	U	10	U
W034 STYRENE	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
W035 XYLENES, TOTAL	UG/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5	U
WT12 SULFATE AS SO4	MG/L	220		290		420		1		2			
ZZ01 SAMPLE NUMBER	NA	016		017		018		019		020		021	
ZZ02 ACTIVITY CODE	NA	ADV02		ADV02		ADV02		ADV02		ADV02		ADV02	

GROUP ANALYSIS SUMMARY

SAMPLE:	A	S	PES	D	E	FLD	G	HER	I	MC	BNC	L	MET	N	VC	PES	Q	R	BN	T	U	VGA	HC	X	Y	TRK	COMMENTS
001 :	0	0	0	0	0	0	0	0	0	24	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
002 :	0	0	0	0	0	0	0	0	0	24	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
003 :	0	0	0	0	0	0	0	0	0	24	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
004 :	0	0	0	0	0	0	0	0	0	24	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
005 :	0	0	0	0	0	0	0	0	0	24	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
006 :	0	0	0	0	0	0	0	0	0	24	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
007 :	0	0	0	0	0	0	0	0	0	24	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
008 :	0	0	0	0	0	0	0	0	0	24	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
009 :	0	0	0	0	0	0	0	0	0	24	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
010 :	0	0	0	0	0	0	0	0	0	24	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
011 :	0	0	0	0	0	0	0	0	0	24	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
011 D:	0	0	0	0	0	0	0	0	0	24	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
012 :	0	0	0	0	0	0	0	0	0	24	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
013 :	0	0	0	0	0	0	0	0	0	49	0	0	0	0	35	0	0	0	0	1	0	0	0	0	0	2	
014 :	0	0	0	0	0	0	0	0	0	49	0	0	0	0	35	0	0	0	0	1	0	0	0	0	0	2	
014 D:	0	0	0	0	0	0	0	0	0	49	0	0	0	0	35	0	0	0	0	1	0	0	0	0	0	2	
015 :	0	0	0	0	0	0	0	0	0	49	0	0	0	0	35	0	0	0	0	1	0	0	0	0	0	2	
016 :	0	0	0	0	0	0	0	0	0	49	0	0	0	0	35	0	0	0	0	1	0	0	0	0	0	2	
016 D:	0	0	0	0	0	0	0	0	0	49	0	0	0	0	35	0	0	0	0	1	0	0	0	0	0	2	
017 :	0	0	0	0	0	0	0	0	0	49	0	0	0	0	35	0	0	0	0	1	0	0	0	0	0	2	
018 :	0	0	0	0	0	0	0	0	0	49	0	0	0	0	35	0	0	0	0	1	0	0	0	0	0	2	
019 F:	0	0	0	0	0	0	0	0	0	49	0	0	0	0	35	0	0	0	0	1	0	0	0	0	0	2	
020 F:	0	0	0	0	0	0	0	0	0	49	0	0	0	0	35	0	0	0	0	1	0	0	0	0	0	2	
021 F:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	0	0	0	0	0	0	0	0	0	0	2	
DETERMI-NATIONS:	0	0	0	0	0	0	0	0	0	802	845	0	0	0	385	0	0	0	0	10	0	0	0	0	0	48	
ANALYSES:	0	0	0	0	0	0	0	0	0	23	13	0	0	0	11	0	0	0	0	10	0	0	0	0	0	24	

ACTIVITY ADV02 LOCKWOOD CORPORATION

THE PROJECT LEADER SHOULD CIRCLE ONE - STORET, SAROAD, OR ARCHIVE.

CIRCLE ONE: STORET SAROAD ARCHIVE

FINAL DATA REPORT APPROVED BY PROJECT LEADER ON 04/05/88 12:19:34 BY Robert B Dona.